



FINAL REPORT

Lawrence County, Ohio Hazard Mitigation Plan



Prepared for
Ironton-Lawrence County Area
Community Action Organization, Inc.

November 2003

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1.0 Forward

Lawrence County received a pair of grants to assist in the development of an All Natural Hazards Mitigation Plan: a Pre-Disaster Mitigation Grant from the Ohio Emergency Management Agency; and an Appalachian Flood Risk Reduction Initiative Grant from the Ohio Department of Natural Resources.

This Hazard Mitigation Plan has been prepared in response to continuing damages from natural hazards such as flooding, tornadoes, severe storms, landslides, earthquakes and droughts. The Lawrence County Hazard Mitigation Plan will:

- Locate areas of risk and assess the potential cost and magnitude;
- Establish strategies and priorities to mitigate risk from natural hazards and identify action steps or projects to reduce the risk;
- Guide the communities in their risk management activities and minimize conflicts between agencies responsible for mitigation; and
- Establish eligibility for future mitigation program funds.

1.1 Lawrence County Natural Disaster Background

Lawrence County is susceptible to several natural hazards. Severe storms, floods, tornadoes, landslides, earthquakes and droughts are events that have adversely affected Lawrence County. Flooding is the number one hazard in terms of total damage costs. In the past decade, there have been four presidential disasters declared in Lawrence County, all of which were flood related. In 1996, the Ohio River flooded causing a total of \$1.7 million in damages, destroying 19 Lawrence County homes. In March of 1997, the Ohio River flooded again causing approximately \$42 million in damage to public infrastructure (roads, bridges, water-control facilities, public buildings, public utilities, parks and recreation facilities) in Southern Ohio. In Lawrence County alone, damages to public infrastructure totaled approximately \$2.5 million.

2.0 County Information

Lawrence County is the southernmost county in Ohio, sharing its borders with Kentucky and West Virginia along the Ohio River. Wayne National Forest covers a large portion of the County, the natural terrain of rugged Allegheny Plateau rolling into the Ohio River floodplain. The major employers within the County are: Ironton City Board of Education, Lawrence County Joint Vocational School, Liebert Corporation, McGinnis Crop, Ohio University Ironton Branch, Rock Hill Local Board of Education, South Point Local Board of Education, and Wal-Mart Stores.



2.1 Lawrence County History

Lawrence County was formed in 1816 from Scioto and Gallia Counties. Lawrence County was named for Captain James Lawrence, naval hero during the War of 1812. Many of the homes along the Ohio River in Southern Ohio, including Lawrence County, were part of the Underground Railroad system in which black slaves sought refuge on their way to freedom in the north.

The City of Ironton, which was named by iron master, John Campbell, as a tribute to the pig iron produced in the County, became the County Seat in 1852. Lawrence County led the nation in iron production during that era, using seventeen furnaces to manufacture iron utilizing locally available iron ore, limestone and native forest charcoal. Civil War cannons and munitions were made from iron found in the hills of Lawrence County. Manufacturing and river and rail transportation continue to be of major importance to the County today.



2.2 Census Information

Population

The following are population counts for the townships in Lawrence County:

Name	1990 Total	2000 Total	% Change
Lawrence County	61,834	62,319	0.8
Aid Township	811	907	11.8
Decatur Township	870	839	-3.6
Elizabeth Township	2,515	2,914	15.9
Fayette Township	9,181	9,169	-0.1
Hamilton Township	1,899	1,817	-4.3
Lawrence Township	2,484	2,574	3.6
Mason Township	1,036	1,095	5.7
Perry Township	6,584	6,813	3.5
Rome Township	7,579	8,694	14.7
Symmes Township	412	470	14.1
Union Township	9,139	9,002	-1.5
Upper Township	17,136	15,648	-8.7
Washington Township	302	250	-17.2
Windsor Township	1,886	2,127	12.8

The City of Ironton has the largest population in Lawrence County with 11,211 people, as listed by the 2000 Census.

Place	1990 Total	2000 Total	% Change
Athalia Village	346	328	-0.1
Chesapeake Village	1,073	842	-0.2
Coal Grove Village	2,251	2,027	-0.1
Hanging Rock Village	306	279	-0.1
Ironton City	12,751	11,211	-0.1
Proctorville Village	765	620	-0.2
South Point Village	3,823	3,742	0.0
Remainder of County	40,519	43,270	0.1

Housing

As of 2000 data obtained from U.S. Census Bureau:

Total Housing Units	27,189
Occupied	24,732
Owner-occupied	18,494
Renter-occupied	6,238
Vacant	2,457

In terms of units per structure, the following information was also obtained from the U.S. Census Bureau:

Total	27,189
1, detached	19,571
1, attached	290
2	983
3 or 4	796
5 to 9	420
10 to 19	152
20 to 49	122
50 or more	265
Mobile home	4,576
Boat, RV, van, etc.	14

2.3 Lawrence County Authority to Adopt Plan

The Lawrence County Board of Commissioners has the authority to adopt the Plan once the Ohio Emergency Management Agency (OEMA) has approved it. Each individual community will then adopt the Plan by resolution. Once the Plan has been adopted by the local jurisdictions, FEMA will formally approve the Plan.

2.4 Lawrence County Land Use and Future Land Use

Lawrence County is predominantly rural in nature, which is evident in the land use map on page 5. The current development occurring within Lawrence County has been primarily concentrated in the southeastern part of the County. This development is predominantly residential and is centered in Union and Rome Townships.

The following information obtained from Lawrence County Housing Numberings gives the quantity of new addresses issued per township from January 1, 2002 through November 13, 2003. From this data, it is apparent that the greatest amount of new development is occurring in Union and Rome Townships, as stated above.

Township	Number of New Addresses Issued
Aid	19
Decatur	11
Elizabeth	52
Fayette	87
Hamilton	8

Township	Number of New Addresses Issued
Lawrence	42
Mason	32
Perry	55
Rome	186
Symmes	14
Union	143
Upper	34
Washington	3
Windsor	48

Industrial development is very limited and typically occurs along the Ohio River. Duke Energy recently built a gas fired electric generation plant in the southwestern section of the County (Hamilton Township.) A second electric plant in the same vicinity is under consideration.

No township in Lawrence County has zoning codes. The following table lists the participating communities and the existing codes and ordinances in place in those localities.

Municipality	Building Code	Zoning Code	Floodplain Development Ordinance
Village of Athalia	No	No	Yes
Chesapeake	In process	No	Yes
Coal Grove	Yes	Yes	Yes
Hanging Rock	No	Yes	Yes
Ironton	Yes	Yes	Yes
Proctorville	No	No	Yes
South Point	Yes	No	Yes

Flood Damage Prevention Resolution

In 1995, the Flood Damage Prevention Resolution was adopted by the unincorporated areas of Lawrence County. This resolution applies to any areas of special flood hazard, which are defined in the resolution as “the land in the floodplain subject to a one percent or greater chance of flooding in any given year. Areas of special flood hazard are designated by the Federal Emergency Management Agency as Zone A, AE, AH, AO, A1-30, and A-99.”

The areas of special flood hazard have been identified by FEMA in a scientific and engineering report entitled *Flood Insurance Study for Lawrence County-Unincorporated Areas*. Under this resolution, any proposed development must be reviewed and a permit must be obtained from the Floodplain Administrator before construction or development can occur within any area of special flood hazard.

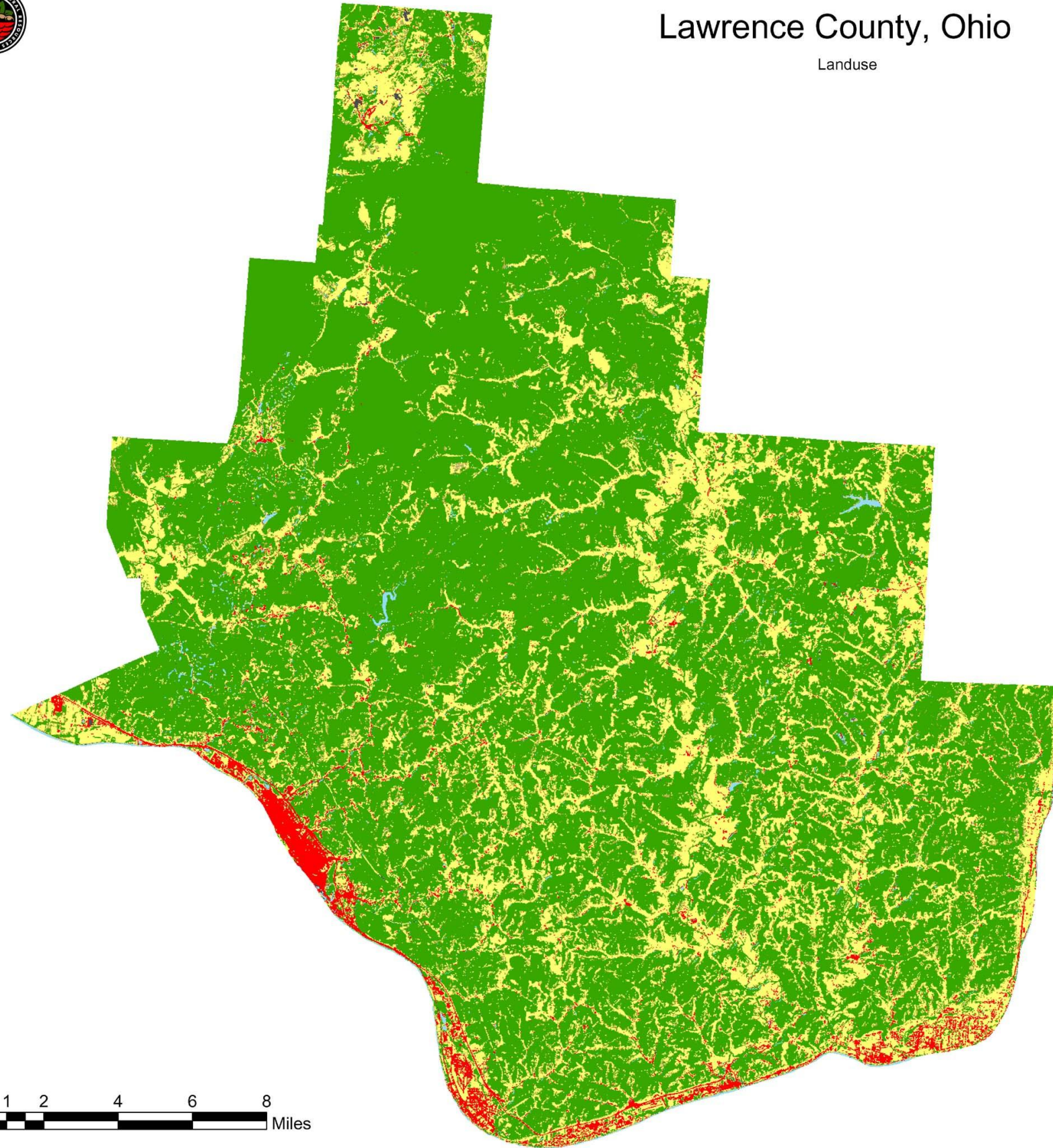
2.5 Community Participation

None of the unincorporated areas participated in the planning effort. Only the incorporated jurisdictions, the Villages of Athalia, Chesapeake, Coal Grove, Hanging Rock, South Point, Proctorville and the City of Ironton, passed resolutions committing to participate in the preparation, adoption and implementation of the plan. Copies of these resolutions can be found in **Appendix 1**.

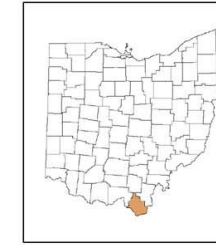


Lawrence County, Ohio

Landuse



NATURAL HAZARD MITIGATION PLAN 2003



Landuse

- 1 - Urban
- 2 - Agricultural/Open Urban
- 3 - Shrubs/Scrub
- 4 - Wooded
- 5 - Open Water
- 6 - Non Forested
- 7 - Barren

Descriptions

- 1 URBAN (open impervious surfaces: roads, buildings, parking lots, and similar hard surface areas which are not obstructed from aerial view by tree cover.) See 7. BARREN
- 2 AGRICULTURE/OPEN URBAN AREAS (cropland and pasture, parks, golf courses, lawns and similar grassy areas not obstructed from view by tree cover)
- 3 SHRUB/SCRUB (young, sparse, woody vegetation; typically areas of scattered young tree saplings)
- 4 WOODED (deciduous and coniferous)
- 5 OPEN WATER
- 6 NON FORESTED WETLANDS (includes wetlands identified from 1994 Thematic Mapper data as well as from the Ohio Wetlands Inventory)
- 7 BARREN (strip mines, quarries, sand and gravel pits, beaches)
Many of the URBAN features identified in this inventory are constructed from materials obtained from the BARREN features. Because of this, there will on occasion be URBAN areas identified as BARREN as well as BARREN areas identified as URBAN.

Scale: 1:95,000
 Projection: NAD 1927 State Plane Ohio South
 Category: Lambert Conformal Conic

Data: The coverage was extracted from the 1994 statewide land cover inventory of Ohio produced by Bruce R. Motesch and Gary M. Schaal of the Ohio Department of Natural Resources.

Created By: Tim Beck
 Date: November 3, 2003

Liability

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Ohio Department of Natural Resources
 Division of Water
 Floodplain Management Program
 1939 Fountain Square Drive, Building E-3
 Columbus, Ohio 43224-1388

3.0 All Natural Hazards Mitigation Planning Process

In an effort to continue to meet the mission of protecting lives, property, economic viability and quality of life for the people of Lawrence County, the County Commissioners desired to create a Countywide All Natural Hazards Mitigation Plan (CANHMP) for their community and its residents. Lawrence County sought the expertise of the engineering firm Fuller, Mossbarger, Scott and May Engineers, Inc. to help them fulfill this task.

3.1 Core Group

Obtaining support from the whole community required a comprehensive approach to preparing the Mitigation Plan. Identifying those persons, community leaders and government agencies with the knowledge and authority to help a community organize a plan is key to the planning effort. A core group of leaders was necessary in order to give this task validity. Those that participated in the Core Group included:

- Lawrence County Emergency Management Agency (EMA);
- Ohio Department of Natural Resources; and
- Various village representatives and private business owners.



The Core Group consisted of the following members:

Janice Gartner, ODNR

Joseph Black, Lawrence County Floodplain Administrator, Lawrence County CAO

Dale Mootz, Director of Special Projects, Lawrence County CAO

Ron Dickess, Owner, Dickess Insurance Agency

Rich Mountain, Scherer Mountain Insurance

Ray Howard, Hecla Water

Keith McGuire, Agent, McGuire Realty Co.

Larry Jewell, Deputy Director, Lawrence Co. EMA

Michael Boster, Lawrence Co. EMA

Don Mootz, Executive Director, Lawrence Co. EMA

James Ward, Deputy Director – 911 Addressing, Lawrence Co. EMA

Juanita Markel, Clerk/Treasurer of Village of Coal Grove

Charles Markel, Resident, Village of Coal Grove

Bob Clark, Ohio EMA

David Michael, Assistant Planner, Lawrence County CAO

Pamela Wilds, Loan Service Supervisor, First Federal Savings Bank

Terri Taylor, Associate Vice President – Loans, Ohio River Bank

Dan Williams, Police Chief, Village of Athalia

Paul Sheets, Engineering Technician, City of Ironton

Philip Biggs, City Engineer, City of Ironton

Jim Buchanan, Mayor, Village of Proctorville

Darryl Harris, Fire Department, Village of Chesapeake

Ron McClintok, Mayor, Village of Athalia

Mark Root, Labor Dept., Village of Proctorville

Rick Dunfee, Village Administrator, Village of Proctorville

Jeannette Waginger, Vice Mayor, Village of Hanging Rock

Bill Gaskins, Mayor, Village of South Point

3.2 Notification Process

A press release about the planning process was issued in the Ironton Tribune. This press release informed the public of the grant received by the County as well as information on the process itself, and can be found in **Appendix 2**. The Emergency Management Agencies and Emergency Services Divisions of adjacent counties were notified of the hazard mitigation planning process taking place in Lawrence County. As required, adjacent townships and counties were also notified of the hazard mitigation planning process. A copy of the letter that was sent out can be found in **Appendix 3**. An additional letter was sent out to local newspapers and agencies, such as the Ohio EPA and Lawrence County Soil and Water, and can also be found in Appendix 3.

3.3 Meetings

There were 11 Appalachian Flood Risk Reduction Initiative (AFRRRI) Meetings held and one community meeting for public comment on the CANHMP. Copies of the meeting summaries can be found in **Appendix 4**.

Problem Statements

Below are some examples of problem statements that were created for the hazards associated with Lawrence County. Please note: All of the problem statements associated with each hazard are located in **Appendix 5**.

Flooding

- Control systems for pump stations of floodwalls need to be replaced.
- Mobile homes are not anchored or elevated and residents may not have the funds to properly anchor their mobile homes.
- There is a need for higher flood standards than NFIP minimums due to historical flood events and to lessen future damages.
- There are currently critical facilities in the floodplain.
- There is a potential for communication systems failures during a flood.

Tornadoes

- There are concerns that the public is not aware of what to do in a tornado event.
- There is a concern over the lack of anchoring of mobile homes and the cost of doing this.
- There is a concern over propane tanks and the need for anchoring regulations.

Severe Storms

Thunderstorms

- There is a need for tree maintenance in utility easement areas.
- There is inadequate warning about impending storms.
- The potential for communication systems failure during severe storms exists.

Winter Storms

- There are no funds available to recover costs for repair of equipment damaged during cleanup.

- There are communications failures (lack of generators, towers falling down) associated with winter storms.
- Overhead utility lines become problematic during winter storm events.

Landslides/Subsidence

- The public is not aware of hazard location areas.
- There is a need for additional investigation and mapping to determine where old mines are located.
- There is a lack of additional building standards in high-risk areas.

Earthquakes

- There is a problem with utility line ruptures.
- There is a lack of education of the public on risks of earthquakes.

Drought / Wildfires

- The public is not aware of times of the year when there is an increased fire risk and how to lessen damages around their homes.
- There is a problem with a high number of arson fires and lax enforcement and prosecution.
- There is no way for the public to report suspected arsonists.

Dam Failures

- There are dams that have been constructed without review or state oversight.
- There is a lack of maintenance of the dams.

Mitigation Alternatives

The Core Group created possible alternatives for each problem statement. Below are some examples of the alternatives that were developed by the Core Group. All of the alternatives associated with each hazard are located in Appendix 4.

Flooding

- No action.
- Seek emergency funding to replace floodwall pump station control system.
- Investigate developing zoning regulations in jurisdictions without zoning.
- Seek funding for anchoring mobile homes.
- Develop countywide storm water drainage regulations.
- Investigate adopting higher floodplain development standards.

Tornadoes

- No action.
- Seek funding for weather radios.
- Adopt and enforce anchoring criteria for mobile homes.
- Adopt and enforce anchoring criteria for propane tanks.

Severe Storms

Thunderstorms

- No action.
- Encourage maintenance of trees in right-of-way areas.
- Seek funding for weather radios.
- Develop backup plans in case of communication failures.

Winter storms

- No action.
- Educate public about winter storm risks and damage prevention.
- Identify equipment needs.

Landslides/Subsidence

- No action.
- Educate public of locations of hazard areas.
- Seek funding for mapping and subsurface investigations.
- Develop regulations for development in high-risk areas.

Earthquakes

- No action.
- Identify areas where additional utility cut-offs are needed to isolate utility systems.
- Develop backup plans in case of communication failures.

Drought/Wildfire

- No action.
- Develop hotline to report arsons.
- Identify areas where fire-fighting equipment is needed.
- Identify areas where fire break lines are needed.

Dam Failures

- No action.
- Identify dams throughout the county to determine if they fall under state regulation.
- Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.

3.4 Matrix Development

Once the alternatives were created for each hazard, the Core Group established evaluation criteria to rank each of the alternatives. The criteria included: cost effective; technically feasible; environmentally sound; socially equitable; meets federal, state and local regulations; activities reduce risk; and socially acceptable.

The evaluation criteria and the alternatives developed by the Core Group were then placed in a matrix that organized all the alternatives and how they rated. Utilizing a matrix allowed the community to systematically review all alternatives, identifying which mitigation method(s) are appropriate based on the specified criteria. The combined results of all the Core Group members were tabulated and the matrix comparison was completed. Each of the activities was

given an averaged number based on all of the Core Group scores, which helps Lawrence County focus their mitigation strategies on the highest ranking alternatives. A copy of the Lawrence County matrix is shown below.

Lawrence County All Natural Hazard Mitigation Plan	Cost Effective Technically Feasible Environmentally Sound Socially Equitable Meets Federal, State and Local Regulations Activities Reduce Risk Socially Acceptable Total							
Flooding								
No Action.								
The floodwall pump stations control systems are failing and replacement parts are not available. Seek emergency funding to replace floodwall pump station control system.								
Building in the floodplain requires flood resistant materials and proper construction methods. This is not often possible due to a lack of a local building code and inspection system. Investigate developing building codes and inspection system in jurisdictions without building codes.								
Zoning overlays would ensure that people are aware of the floodplain area. A zoning permit would trigger a floodplain review and permit. Investigate developing zoning regulations in jurisdictions without zoning.								
People are often not aware of the damage that floods can do. Educate public about flood damage prevention.								
People are not aware of impending flood situations. Seek funding for weather radios.								
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.								
Mobile homes are not anchored even though there are codes requiring this. Adopt & enforce anchoring criteria for mobile homes.								
Residents may not have the funds to properly anchor their mobile homes. Seek funding for anchoring of mobile homes.								
There are storm water drainage problems throughout the county, with numerous causes. Inventory storm water drainage problem areas.								
Increased building in the county increases storm water drainage. Storm water drainage regulations would help address this additional run-off and flooding problems that are prone to develop. Develop county-wide storm water drainage regulations								
There are buildings (commercial and residential) that are prone to flooding. Identify priority areas for elevation, acquisition or retrofitting of buildings prone to flooding.								
The county does not have adequate funding to reduce structural losses to buildings in the floodplain. Seek funding for elevation, acquisition or retrofitting of buildings prone to flooding.								
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.								
Combined sanitary sewers often fill with flood waters, which then back up into structures. Seek funding for back-flow preventers in areas of combined sanitary sewers.								
There are areas in the county that flood, but are not identified on flood maps or are mapped only with approximate flood elevations. Identify priority areas for mapping of unidentified floodplains or those where detailed flood elevations are needed.								
Flood mapping is very expensive and the county does not have adequate funding to address the needs. Seek funding for flood mapping.								
Additional regulations are needed to reduce flood damages. Investigate adopting higher floodplain development standards.								
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.								
Watercourses are often altered without the proper permits and review of impacts. Educate the public regarding regulations pertaining to watercourse alterations.								

Rating Scale
1-low
2
3
4
5-high

3.5 Public Review and Involvement

The formal public notification process as defined in the Federal Code took place prior to approval and/or adoption of the plan. The public was notified that the process to produce the All Natural Hazards Mitigation Plan was underway and that they would have an opportunity to review the for a thirty-day period prior to submittal to the Ohio Emergency Management Agency and the Federal Emergency Management Agency. As stated above, a copy of the press release informing the public of the grant received by the County as well as information on the process itself can be found in Appendix 2. A formal public hearing was held on August 21,

2003. The notice announcing this public hearing was published in the Ironton Tribune, a copy of which can be found in **Appendix 6**.

4.0 State of Natural Disasters and Hazard Assessment for Lawrence County

4.1 Initial Hazard Determination for Lawrence County

In order to properly evaluate the natural hazards that Lawrence County may be susceptible to, a three-step process was utilized. This process was completed in order to “narrow-down” the hazards that Lawrence County should prepare for, and potentially mitigate, in the future.

Step 1 – The Core Group researched FEMA’s database to determine which hazards FEMA had documented as possible natural hazards, including future threats, for the State of Ohio. Several hazards that are listed on FEMA’s website include Flooding, Severe Storms, Tornadoes and Winter Storms.

Ohio Disaster History According to FEMA
1989 Severe Storms & Flooding
1990 Severe Storms, Tornadoes & Flooding
1992 Severe Storms, Tornadoes & Flooding
1995 Severe Storms & Flooding
1996 Severe Storms & Flooding
1996 Severe Storms & Flooding
1997 Severe Storms & Flooding
1998 Severe Storms

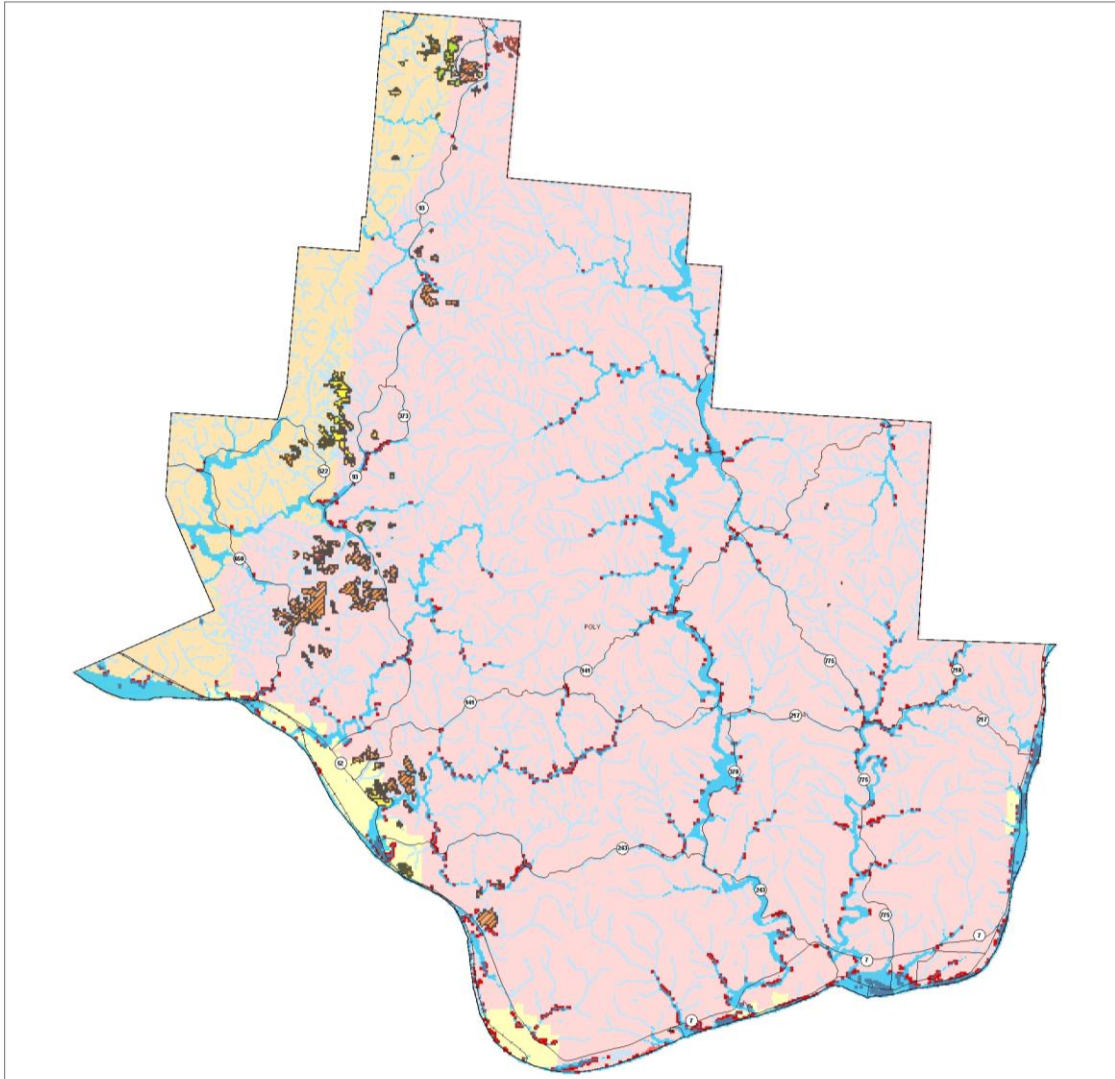
Step 2 – The Core utilized the National Climatic Data Center (NCDC) website that allows reviews of historic hazard information all the way down to the County level. The NCDC website presents each type of hazard and the historic information associated with it for each County, offering several hazard search parameters. These parameters include: droughts, dust storm, flooding, fog, hail, hurricanes, lightning, tornadoes, wild/forest fires, ocean/lake surf, precipitation, snow and ice, temperature extremes and thunderstorms and high winds. Of those parameters, dust storms, severe fog, hurricanes/tropical storms, and ocean/lake surf have either never been documented in Lawrence County by the NCDC, or have not occurred since 1950. This left droughts, flooding, hail, lightning, tornadoes, snow and ice, severe precipitation, temperature extremes and thunderstorms and high winds to further assess. Note that earthquakes and landslides/subsidence are not part of the NCDC database. Costs in the Initial Hazard Assessment include damages incurred to counties surrounding Lawrence if a specific event occurred over multiple counties.

The information pertaining to earthquake susceptibility was attained from USGS and the Ohio Earthquake Program Manager, Candace Sherry, at the Ohio Emergency Management Agency (OEMA). The information pertaining to landslides and subsidence was attained from the Lawrence County Engineer.

Step 3 – The Core Group wanted to further review the hazards that were to be analyzed by utilizing a document created by the Ohio Emergency Management Agency in 1998 called the Ohio Hazard Analysis and Risk Assessment, for local and state emergency preparedness officials. This document looks at both natural and non-natural (technological) hazards. A multi-hazard map for Lawrence County is shown on the following page, and a large format map can be found as **Attachment 1**.

Initial Hazard Assessment	No. of Events	Cost in Millions
Severe Storms (1950-2003)	88	6.08
Winter Storms	3	5.25
T-Storms/High Winds/Lightning	59	0.45
Hail	26	0.38
Rain Non-Severe	9	0
Snow Non-Severe	10	.055
Floods (1950-2003)	25	1.02
Flash Floods	19	5.57
100-Year/Non-Floodzone Floods	6	4.58
Tornadoes (1950-2003)	5	2.75
Landslide/Subsidence		
Earthquakes	0 epicenters	
Droughts, Excessive Heat and Extreme Cold (1950-2003)	52	.016

Multi-Hazard Map Lawrence County



Floodplain Hazard

- 100 Year Floodplain
- Structures

Subsidence Hazard

Abandoned Mine Type

- Coal
- Limestone
- Clay
- Coal, Clay, Limestone
- Coal, Limestone, Iron
- Clay, Coal
- Coal, Clay
- Coal, Limestone
- Limestone, Coal
- Limestone, Iron

Landslide Hazard

- High Susceptibility/Moderate Incidence
- High Incidence (Greater than 15% of area involved)
- Moderate Incidence (1.5-15% of area involved)

- Airports
- Cities
- Railroads
- Roads
- Streams



The Ohio Department of Natural Resources
Division of Water
Floodplain Management Program
(614) 263-6750



The Core Group used the process described in the Ohio Hazard Analysis to further define their risk to each of the hazards that they would be concentrating on as it relates to the potential damaging effects of each one. The Core Group chose to only utilize the ranking criteria that they felt would help them rank the hazards for Lawrence County.

4.2 OEMA Hazard Analysis Process

A hazard analysis consists of two elements: the identification of a hazard (with related threats to life and property) and an assessment of the risks associated with that hazard. Research for this analysis involved the collection of both historical and statistical data, including interviews with professionals in various disciplines. Information was then systematically analyzed for potential risk value. The risks associated with each hazard were further assessed using eight factors with numerical risk values. These eight factors are: *Historical Occurrence, Affected Area, Collateral Damage, Warning Time, Demographic Factors, Fiscal Effects, Duration and Response/Recovery Time*. Numerical values were applied to provide a basis on which to compare assigned weights among hazards and assigned risks. Factor value totals were then added, allowing hazards to be compared against each other to obtain final rankings.

In some areas, figures shown in this analysis may appear to conflict with other data. Information relating to tornado frequencies may, for example, reflect a greater or lesser total number of events than that cited in annual weather safety programs. This apparent discrepancy is based on the fact that the source of the data, the National Weather Service, uses two separate databases, one listing each tornado with multiple touchdowns as one event; while another base counts single tornado touchdowns at several points as multiple tornado events.

Historical Occurrence

All research has indicated the frequency with which events have occurred. Some have been fairly frequent in this state while others were only sporadic.

2	4	6	8
Low	Medium	High	Excessive

If a hazard/event occurred from one to five times within a ten-year period, it has a Low Probability of occurrence. If occurred up to ten times within 10 years, it has a Medium Probability. If the hazard was encountered more than ten times in 10 years it has a High Probability. If the hazard occurred ten or more times within a year, it receives an Excessive Probability rating.

Affected Area

Each hazard affects a geographical area and assigned numerical values represent the size of that area. A tornado might strike a village, city, or section of a township or a Single Site. If it strikes more than one community, or other sites within a township, it would involve Multiple Sites. If the tornado causes damage at multiple sites in two townships those sites would represent a Minor Area. If the event affects sites in three or more townships or a whole county, then for analysis purposes, it is a Major Area.

2	4	6	8
Single Site	Multiple Sites	Minor Area	Major Area

Collateral Damage

Some hazards may pose a collateral (or secondary event) threat. This means that, in addition to the damage caused by an event, the action may cause further “mini-events” or collateral / secondary damages stemming from the initiating event or situation.

2	4	6	8
No Possibility	Some Possibility	Increased Possibility	High Possibility

Warning Time

Warning Time(s) may affect both the demographic and fiscal factors of a hazard. The lead-time required to protect lives and property varies greatly with each event. For instance, a winter storm may develop so slowly that there is time to alert crews and emplace plows, but flash floods can occur with no warning.

2	4	6	8
Extended (Over 60 Minutes)	Medium (31-60 Minutes)	Short (15-30 Minutes)	Short-None (Under 15 Minutes)

Demographic Factor (aka Population Impact)

The Demographic Factor refers to the effects upon a populace, casualties via deaths or injuries, which can be expected from a given event. The Shadyside Flood of 1990 was a powerful flash flood (with mudslides) that occurred in an area without a warning system, resulting in 33 deaths. Other types of floods (as on the Ohio River) may develop slowly, allowing more warning time and thus, few or no casualties.

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

Fiscal Effects

These relate to the monetary losses suffered in an event. This factor can vary between jurisdictions based on economic, geographic, demographic and legal considerations. Subdivisions that consistently enforce floodplain regulations are less likely to incur severe fiscal losses than those permitting construction in floodplains.

2	4	6	8
Minimum (\$0-10,000)	Low (\$10,000-50,000)	Medium (\$50,000-100,000)	High (Over \$100,000)

Duration

Duration may be defined as “time on the ground” or that time period when a hazard, or event, is actively present and causing damage. A HAZMAT spill may last a few minutes; a flood may last

a week. Duration, therefore, may not always be indicative of the degree of damage but it remains a factor.

2	4	6	8
Minimal (Up to 1 Hour)	Short (1-2 Hours)	Medium (13 Hours - 1 Week)	Long (Over 1 Week)

Response Time

The Response Time for an event can vary greatly depending upon resources and capabilities. This factor may reflect many readiness variables; equipment procurement, professional development (training), plans and SOPs, staffing, experience, and the political structure/climate.

2	4	6	8
Low (Less than 24 Hours)	Medium (1-5 Days)	High (6-10 Days)	Extreme (Over 10 Days)

Once a total numerical threat value is derived for each of the hazards affecting the county, the numbers are then ranked, in order, from highest to lowest values (most to least threatening hazards). Annual emergency management goals and objectives (to include plans and training) for a county should be based on this ranking. It is assumed that by completing this exercise that your highest rated hazard will have the most total points associated with it. Thus, if floods pose the greatest threat, mitigation actions should address flooding first. However, other hazards should not be excluded; and as projects are completed, or event frequencies change, all hazards should be subject to periodic re-evaluation

4.3 Lawrence County’s Ranking Exercise

Lawrence County evaluated several known hazards for the County, which included: Flooding, Tornadoes, Winter Storms, Landslides / Subsidence, Earthquakes, Wildfires, Thunderstorms / Winds, Droughts, Dam Failures and Hail. By completing the OEMA ranking, Lawrence County was able to prioritize their hazards. Flooding, which for Lawrence County has the highest rated number of historical events, was graded as the largest concern to the Core Group conducting the ranking exercise. The totals at the bottom of the following table give the Core Group a generalized sense of how the hazards should be ranked and prioritized.

	Floods	Tornadoes	Winter Storms	Landslides/Subsidence	Earthquakes	Wildfires	Thunderstorm Winds	Drought	Dam Failures	Hail
Historical Occurrence	6	2	4	8	2	8	8	2	2	6
Affected Area	8	6	8	4	8	4	4	8	6	4
Collateral Damage	8	8	8	4	6	4	4	4	8	4
Warning Time	2 R 8 FF	8	2	8	8	2	6	2	8	8
Population Impact	4 R 8 FF	4	8	2	4	4	2	2	8	2
Fiscal Impact	8	8	8	6	8	2	2	8	8	4
Duration	8 R 4 FF	2	6	4	2	6	2	8	2	2
Response/Recovery Time	8	8	6	4	4	4	2	8	8	2
Totals	52 R 58 FF	46	50	40	42	34	30	42	50	32

- R = River
- FF=Flash Flood

4.4 History of Flooding in Lawrence County

There have been several large-scale flooding events in Lawrence County. The main flooding source in the County is the Ohio River. Major floods were recorded on the Ohio River in February 1884, March 1913, January 1937, March 1945, April 1948 and March 1997. Listed below are the top ten crests of the flood gages around Lawrence County. This information was obtained from the NOAA Ohio River Forecast Center.

Ashland Gage – River mile 322.5 Kentucky side (100-year flood = 547.5)

Date	Ashland Gage (flood stage is 52 feet)
2/12/1884	69.4 feet = 550.9 elev.
3/31/1913	70.7 feet = 552.2 elev.
3/21/1933	62.1 feet = 543.6 elev.
3/23/1936	63.3 feet = 544.8 elev.
1/27/1937	74.2 feet = 555.7 elev.
2/5/1939	61.2 feet = 542.7 elev.
1/2/1943	64.0 feet = 545.5 elev.
3/9/1945	64.5 feet = 546.0 elev.
4/17/1948	65.9 feet = 547.4 elev.
3/8/1955	68.83 feet = 545.33 elev.

Greenup Gage – River mile 341.5 Kentucky side (100-year flood = 540.5)

Date	Greenup Gage – (flood stage is 54 feet)
2/12/1884	64.0 feet = 537 elev.
3/31/1913	64.5 feet = 537.5 elev.
1/27/1937	74.7 feet = 547.7 elev.
3/9/1944	61.7 feet = 534.7 elev.
1/13/1974	55.0 feet = 528 elev.
12/11/1978	59.2 feet = 532.2 elev.
2/28/1979	59.19 feet = 532.19 elev.
1/2/1991	56.04 feet = 529.14 elev.
1/22/1996	55.3 feet = 528.3 elev.
3/4/1997	62.3 feet = 535.3 elev.

Huntington Gage – River mile 311.5 Ohio side (100-year flood = 552)

Date	Huntington Gage – (flood stage is 50 feet)
2/12/1884	64.6 feet = 554.9 elev.
3/31/1913	66.2 feet = 556.5 elev.
1/27/1937	69.4 feet = 559.7 elev.
1/1/1943	60.11 feet = 550.41 elev.
3/9/1945	59.86 feet = 550.16 elev.
4/17/1948	61.6 feet = 551.9 elev.
2/3/1950	56.62 feet = 546.92 elev.
3/7/1955	59.54 feet = 549.84 elev.
3/9/1967	56.36 feet = 546.92 elev.
3/5/1997	57.52 feet = 547.82 elev.

Flood of 1913. The booklet “Flood Views of Ironton, Ohio, March 31, 1913” (published by Emmel Howard, Chillicothe, Ohio), reported that, “Water covered over two-thirds of the City ranging from 6 to 12 feet deep. Property losses were estimated at over \$27 million at today’s dollar value. Two thousand residents were homeless, 24 houses were washed away and 68 houses were taken off their foundations.”

Flood of 1937. The Herald Dispatch published information about the 1937 flood in the January 25, 1987 edition, to commemorate 50 years since the flood. In the 1987 edition, it was reported that 90% of the City was under water and 10,000 residents were homeless. As a result of the flood, the Ironton floodwall was started in March 1938, at an estimated cost of \$47,500,000 at today’s dollar value. This project consisted of levees, floodwalls and pumping stations to protect the City of Ironton.



**2nd Street in Ironton, Ohio
Flood of 1937**

The following information about the flood of 1937 was obtained in a U.S. Army Corps of Engineers report

from June of 1973, entitled “Floodplain Information for the Ohio River, Lawrence County, Ohio.” This report stated that:

About 75% of the City of Ironton was inundated to an average depth of 11 feet. The most damage was done in the Storms Creek area due to strong currents. Depths of 12 feet to 15 feet were recorded in the main business section. Approximately 3,000 dwellings, 275 stores, 12 schools, one hospital and 15 industries were in the flooded area.

The report also listed newspaper reports for the Village of Proctorville indicating that the entire town was inundated above the second floor of structures. The 1937 flood took 12 days to crest and remained out of bank for over two weeks.

Flood of March 1997. Rainfall amounts of up to 12 inches produced by thunderstorms during March 1st and 2nd, 1997, resulted in severe flooding throughout much of southern Ohio. Eighteen counties were declared Federal and State disaster areas, including Lawrence County. Approximately 6,500 residential dwellings and more than 800 businesses were affected by flooding. Nearly 20,000 people were evacuated and 5 deaths were attributed to the flooding.

Severe flooding was generally confined to stream reaches within 50 to 70 miles of the Ohio River. The most severe flooding in Ohio was in Adams, Brown, Gallia, Meigs, Lawrence and Scioto Counties.

According to the Ohio Emergency Management Agency (OEMA), 93 roads were closed as a result of the flooding on March 2, 1997. OEMA estimated that by March 5th, 1,200 residents of southern Ohio were without natural gas, 2,032 were without electricity, and 1,785 were without telephone service.

The March 1997 flood resulted in approximately \$42 million in damage to public infrastructure (roads, bridges, water-control facilities, public buildings, public utilities, and parks and recreation facilities) in southern Ohio. The following table provides detailed information for Lawrence County on infrastructure-damage estimates related to the March 1997 flood:

County	Debris Removal	Emergency protective measures	Roads and bridges	Water-control facilities	Public buildings, facilities, equipment	Public utilities	Parks and recreation	Total dollars
Lawrence	43,000	72,000	2,300,000	5,000	38,000	0	0	2,458,000

Source: U.S. Geological Survey Water-Resources Investigations Report 97-4 149

Preliminary assessments of damage to residential structures in Lawrence County as a result of the March 1997 flood are listed in the table below:

County	Damage Assessments (In Numbers of Structures)		
	Destroyed / Major	Minor	Affected
Lawrence	246	201	28

Source: U.S. Geological Survey Water-Resources Investigations Report 97-4 149

Lawrence County received over \$4.5 million in disaster assistance for housing and small businesses and grants for individuals and families. The following is a breakdown of the disaster assistance received by Lawrence County:

FEMA Housing		Small Business		Individual and Family Grant Program				Flood Insurance Policies Purchased
# Apps.	\$ Asst.	# Apps.	\$ Asst.	# Apps. Rec.	# Apps. Denied	# Appr.	\$ Award	
607	1,300,511	124	2,465,800	616	426	190	981,767	66

The National Climatic Data Center (NCDC) has comprehensive information available on flood events back to 1993. Flooding is the second most frequent disaster event: hail being the most common. The costliest disaster is flooding, with a total amount over ten million dollars.

There were twenty-eight flooding events documented between 1993 and 2002, as shown in the following table. More detailed descriptions of the yellow highlighted events are provided after the table.

Source: NCDC WEBSITE

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Countywide	05/07/1994	1620	Flash Flood	N/A	0	0	500K	0
2 OHZ076 - 085>087	01/20/1996	12:00 PM	Flood	N/A	0	0	1.7M	0
3 Countywide	04/01/1996	10:00 AM	Flash Flood	N/A	0	0	10K	0
4 Countywide	05/15/1996	02:00 PM	Flash Flood	N/A	0	0	10K	0
5 Bartles	05/24/1996	09:30 AM	Flash Flood	N/A	0	0	10K	0
6 Proctorville	06/08/1996	06:15 PM	Flash Flood	N/A	0	0	10K	0
7 Eastern Half	06/23/1996	12:00 AM	Flash Flood	N/A	0	0	400K	0
8 Countywide	07/31/1996	02:30 AM	Flash Flood	N/A	0	0	400K	100K
9 Countywide	03/01/1997	06:30 AM	Flash Flood	N/A	0	0	2.0M	0
10 OHZ087	03/02/1997	07:00 PM	Flood	N/A	0	0	2.0M	0
11 Countywide	03/02/1997	12:00 AM	Flash Flood	N/A	0	0	1.0M	0
12 Countywide	03/03/1997	08:00 AM	Flash Flood	N/A	0	0	10K	0
13 Countywide	03/04/1997	01:00 AM	Flash Flood	N/A	0	0	5K	0
14 Kitts Hill	06/02/1997	05:45 PM	Flash Flood	N/A	0	0	20K	0
15 Countywide	01/07/1998	07:00 PM	Flash Flood	N/A	0	0	10K	0
16 Countywide	06/14/1998	11:30 PM	Flash Flood	N/A	0	0	10K	0
17 Countywide	02/18/2000	04:00 PM	Flash Flood	N/A	0	0	400K	0

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
18 OHZ075 - 085>087	02/19/2000	11:00 AM	Flood	N/A	1	0	50K	0
19 Ironton	07/10/2000	10:30 PM	Flash Flood	N/A	0	0	2K	0
20 North Portion	05/17/2001	10:30 PM	Flash Flood	N/A	0	0	250K	0
21 Buckhorn	05/17/2001	12:30 AM	Flash Flood	N/A	0	0	25K	0
22 Countywide	05/18/2001	06:00 PM	Flash Flood	N/A	0	0	400K	0
23 OHZ085>087	03/20/2002	02:00 AM	Flood	N/A	0	0	750K	0
24 OHZ083>084 - 086>087	04/21/2002	07:00 PM	Flood	N/A	1	0	40K	0
25 OHZ083>087	04/28/2002	03:30 AM	Flood	N/A	0	0	45K	0
TOTALS:					2	0	10.057M	100K

Key: Mag: Magnitude, Dth: Deaths, Inj: Injuries, PrD: Property Damage, CrD: Crop Damage

Significant Events

Event 2. As a result of rain and melted snow in Pennsylvania, West Virginia, and western Maryland, the Ohio River crested 3 to 6 feet above flood stage from Marietta to Ironton. The crest at the Corps of Engineers gauge at Marietta was 39.3 feet, Pomeroy reached 50.5 feet, Gallipolis saw 51.6 feet. This crest was slightly greater than the crest in January of 1994. A flood of equal magnitude occurred in February of 1979. In Washington County, 28 structures were reported destroyed, Meigs County had 20 dwelling destroyed, while Lawrence County had 19 destroyed.

Event 13. Showers and thunderstorms dumped 4 to 9 inches of rain across southeast Ohio from the predawn hours of Saturday, the 1st, through the morning hours of Monday, the 3rd. The heaviest rain rates were on Saturday and Saturday night, with a lull in the rain during Sunday, the 2nd. The early Saturday downpours were concentrated across the extreme south, lifting north, into the Hocking and lower Muskingum Valleys late Saturday. The early Monday rains, contributed little to the overall damage, but kept some of the larger streams out of their banks. The full spectrum of flooding occurred.

The worst effects were over Lawrence and Jackson Counties. The least damage was over Perry and Morgan Counties. Lawrence, Gallia, Jackson, Vinton, Meigs, Washington, Athens, and Morgan Counties were all declared a federal disaster by President Clinton. Only one death occurred in southeast Ohio. An elderly man died Sunday night after driving his vehicle into high water along Route 7, near Eureka of Gallia County. No significant injuries were reported.

On the order of 2,800 residents received individual assistance from FEMA, over 1,000 of which, were from Lawrence County alone. Jackson County had nearly 600 citizens get federal assistance. Throughout southeast Ohio, around 700 homes received major damage or were destroyed, by either the small stream or the river flooding. Of the 700, around 600 were from Lawrence, Jackson, Gallia, and Meigs Counties. The majority of the homes affected were low income dwellings. Many small private bridges were damaged or destroyed. Secondary roads

were undermined by flooding streams. The first flooding was from small feeder streams across Lawrence County early Saturday morning. However, it was the larger streams that eventually did more damage. Residents of Aid along Symmes Creek reported the water covering the valley from hillside to hillside. Dozens were evacuated early Sunday around Aid and Arabia. Residents ran low on supplies, as access roads remained flooded into Monday and Tuesday, the 3rd and 4th.

In Jackson County, Little Salt and Horse Creeks pushed 1 to 3 feet of water into homes in the city of Jackson, after midnight on that Sunday morning, the 2nd. The sewer plant, an auto parts store, and a major industry were damaged in Jackson. Pigeon Creek flooded homes in the Byer vicinity.

In Vinton County, Pigeon Creek and Middle Fork flooded homes. Two teenagers were rescued by boat, about 3 miles east of McArthur along Route 50. They had driven their van into the rising water of Elk Fork. The time was after midnight, on Sunday morning the 2nd. After escaping the vehicle, they held onto a broken telephone pole for about 3 hours, before being rescued. The Radcliff area of Vinton Township located in Vinton County was flooded by Racoon Creek.

In Athens County, the worst flooding appeared along Sunday, Sugar, and Federal Creeks affecting communities such as Chauncey and Amesville. A mobile home along Sugar Creek was carried several hundred feet. A babysitter and 4 children were rescued from the mobile home. In Amesville, 2-dozen homes and every business received some degree of flooding. Later, the Hocking River crested 2 to 3 feet above flood stage on Monday, the 3rd.

In Gallia County, Racoon Creek reached record heights on the 2nd, and continued to cause flooding on the 3rd and 4th. The town of Vinton was hard hit by the flooding along Racoon Creek. Some 50 to 60 homes were evacuated. The general store was damaged. Further downstream, the crest at Adamsville was 29 feet. Chickamauga Creek flooded areas in and near Gallipolis.

In Meigs County, Leading Creek damaged about 15 homes in Langsville. Little Leading Creek caused damage around Rutland. The Shade River flooded Chester.

In Morgan County, county officials reported no homes were flooded. The damage was mainly to water and sewer lines around the Stockport region of Windsor Township.

In Washington County, Duck Creek put 6 feet of water into the village building at Lower Salem. Rainbow and Wolf Creeks also caused damage.

The Ohio River rose rapidly on the 2nd, at about a half foot per hour. The Pomeroy mayor said, "about as fast as I've ever seen". Upriver of the Hocking and Little Kanawha Rivers, the crest on the Ohio River did not cause major problems. The crest at Marietta was below flood stage. The crest reached 1 to 2 feet above flood stage around Belpre, increasing in magnitude downriver. The crest was 4 to 8 feet above flood stage in the Pomeroy, Gallipolis, Proctorville, and Ironton reach of the river. The crest did not reach Ironton until the predawn hours on the 5th. Specific crests were 50.9 feet at Pomeroy, and 55 feet at the lock and dam near Gallipolis. Water was 1 to 3 feet deep on the ground floor of most businesses along Pomeroy's Main Street. The last time the water was higher at Pomeroy was late February in 1979. The village of Proctorville received heavy damage from the Ohio River. Water was about 3 to 4 feet deep in

many businesses in that Lawrence County river town. Damage was less in Chesapeake. Main Street of Coal Grove was flooded.

Event 18. Rains of 2 to 4 inches fell in about an 18-hour period. A strong frontal zone was in the vicinity, as low pressure moved up the Ohio Valley. Southerly winds pulled low level moisture north from Tennessee and Kentucky. Surface dew points were in the 55 to 60 degree range south of the frontal boundary. Carpenter of western Meigs County had 4.1 inches, Gallipolis measured 3.7 inches, Jackson 3.45 inches, Patriot, Salem Center, and Willow wood all had around 3.3 inches, while McArthur had 3.2 inches. A spotter network in Meigs County revealed 3.9 inches at Racine and 3.6 inches at Syracuse.

Preliminary damage assessment figures from emergency management officials had 3 homes in Meigs County and 2 homes in Lawrence County sustaining major damage. Minor damage to homes was reported in Athens, Gallia, Meigs, and Washington Counties. In Gallia County, about a dozen homes sustained minor damage. Racoon Creek flooded and closed roads. Minor river flooding occurred after the flash flooding on the small streams. The Hocking River in Athens County crested just over its 20-foot flood stage at 20.49 feet around 6:00 am on the 20th. The Ohio River caused the usual backwater flooding from below Belleville Lock and Dam to the Ironton vicinity. The crest at Pomeroy was a half of a foot over the 46-foot flood stage around 5:00 am on the 21st. This was not high enough to affect the businesses in town. In Meigs County, a 51- year old man drowned in the flooded backwaters of the Ohio River near the mouth of Leading Creek. The area is known as Shady Cove near Hudson. A father and his son were in a small boat, ferrying across a flooded area. The boat hit a submerged object around 2:30 pm on the 20th. The father fell out of the boat. He was not wearing a life jacket. His body was recovered that evening by the fire department.

Flash Flooding

Flash Floods are the number one weather related killer in the United States, with around 140 deaths recorded each year. Flash Floods can happen anywhere at anytime. Lawrence County's concern for flash flooding is two-fold: 1) the lack of warning time to let communities know that a flash flood is imminent; and 2) undersized infrastructure being unable to handle a specific storm event.

River Flooding

Joe Black of the Lawrence County Floodplain Management Program provided the following information describing river-flooding problems in Lawrence County.

The Ohio River is the major source of backwater flooding in Lawrence County. In addition to the Ohio River, there are several major streams in the County that have the potential to flood and cause damage to property and are listed as follows:

- Indian-Guyan Creek: Empties into the Ohio River and primarily impacts Union Township in the Proctorville area.
- Symmes Creek: Feeds into the Ohio River at Chesapeake and can impact Union Township, Windsor Township, Aid Township and Symmes Township.
- Ice Creek: Empties into the Ohio River at Coal Grove and impacts Upper Township and Perry Township.

- Storms Creek: Feeds into the Ohio River at Ironton and impacts primarily Upper Township.

These streams are all affected by Ohio River backwater flooding and heavy inundations of rain, that includes runoff from the adjacent hills and small feeder streams that run into these larger streams.

Commercial Structures / Critical Facilities

The following is a table of the commercial structures / critical facilities located within the floodplain. Please see **Appendix 7** for a complete list of the critical facilities in the County.

Township/Community	Structures in Floodplain
Aid Township Unincorporated Township	Symmes Valley School facility, football field and field house
Decatur Township Unincorporated Township	None identified
Elizabeth Township Unincorporated Township	Ironton Country Club, Elizabeth Fire Dept.
Fayette Township Unincorporated Township	McGinnis barge, K-Mart, Sybene Senior Center
Hamilton Township Unincorporated Township	Apostolic church, Arrick's Propane, AEP Transmission Station, Our Lady of Fatima Shrine
Hanging Rock	None Identified
Lawrence Township Unincorporated Township	None identified
Mason Township Unincorporated Township	None identified
Perry Township Unincorporated Township	None identified
Southpoint	None identified
Rome Township Unincorporated Township	Hecla Water fields and plant, Union Rose sewer station, 3 small businesses, Ace Hardware, Guyan church, Dollar General Store, commercial garage, Holiday apartments, Rome trailer park
Athalia	Athalia Village Hall, 2 churches
Symmes Township Unincorporated Township	None identified
Union Township Unincorporated Township	Kroger, McDonald's, BP Gas, vacant commercial building, church, 2 businesses, barge company, Cliffview apartments, Union Rose Sewer, Indian Guyan trailer park, Chesapeake school, Chesapeake Community Center
Proctorville	Angie's Cakes and Cookies, Bureau of Motor Vehicles, BP Gas Station, Buggy Bath, Capper's Law Office
	Car Wiz, Church of Christ, D & M Electrolysis, Dr. Darlington, Edward Jones Financial, Ernie's Car Wash, Scotch Clean, First Federal, Flowers

Township/Community	Structures in Floodplain
Chesapeake	Wholesale, Stillpass Attorney, Fruth, Helen's Beauty Salon, Henderson's Feed, Holzer Clinic, Hutchinson's Insurance, Mauk's Insurance, Jerry's Wrecker Service, Shepherds Flowers, Kit Carson's Gun, Klein & Hall Law, Kroger, L.C. Communications, Mark's Pastime, Proctorville Lodge, McDonald's, Ohio Valley Check Cashing, Pinkerman's Monuments, Post Office, Proctorville Fire Department, Snow Biz, Speedway, Stephens Insurance, Subway, T. Annese Alterations, Panchetto's, Tudors, Village Floral, Hair by Joyce, Wendy's, World Wide Hearing, Pay Day Express, Jim's Gun Shop, Jim's Auto Repair, Bridal Shop, Proctorville Village Hall
Upper Township Unincorporated Township	Shopping Center
Ironton	None identified
Coal Grove	Water and Sewer Plant, variety store, flower shop, car wash, school, restaurant, truck repair, auto repair, 5 churches, trucking business, gas station, store, printing business, 2 small stores
Washington Township Unincorporated Township	None identified
Windsor Township Unincorporated Township	Scottown Post Office, Nana's General Store, Gibson Chapel

The Village of Coal Grove also included the following information regarding the values of residential and commercial structures located in the floodplain.

Location/Structure	Market Value	Number of Structures
Ridgeway Street	\$ 670,556	39
Depot Street	\$ 239,560	12
Rose Bud Street	\$ 62,130	2
Memorial Street	\$ 427,910	19
Main Street	\$ 393,050	13
Pike Street	\$1,409,080	49
Lincoln Street	\$ 160,350	6
Elm Street	\$ 43,270	2
St. Charles Street	\$ 104,260	2
Locust Street	\$ 339,890	15
Marion Pike	\$ 342,090	6
Water and Sewer Plant	\$ 814,870	1
Total	\$5,007,016	166

There are 23 bridges under State jurisdiction and 181 bridges under County jurisdiction. According to the Lawrence County Engineer there are no maps available to determine if any bridges are located in the floodplain, therefore, no damage estimates could be calculated at this time.

Repetitive Loss Flooding

Lawrence County has 26 repetitive loss structures, according to FEMA Region V records. Repetitive loss structure is a term that is usually associated with the National Flood Insurance Program (NFIP). For Flood Mitigation Assistance (FMA) program purposes, a repetitive loss structure is one that is covered by a flood insurance contract under the NFIP, that has suffered flood damage on two or more occasions over a 10-year period, ending on the date when a second claim is made, in which the cost to repair the flood damage, on average, equals or exceeds 25% of the market-value of the structure at the time of each flood loss event. A repetitive loss structure is important to the NFIP, since structures that flood frequently put a strain on the flood insurance fund. It should also be important to a community because of the disruption and threat to residents' lives by the continual flooding.

Information was obtained on the source of the repetitive loss flooding by locating each structure on the county map and determining which waterway would impact it based upon its location. This methodology was used due to the fact that FEMA does not have flood source information included on the insurance data that was provided for use with the preparation of the plan.

- Two repetitive loss structures on Burton Street flooded due to their proximity to the Ohio River.
- Four repetitive loss structures on Jewell Drive flood due to their proximity to the Ohio River.
- The repetitive loss structure on Fulton Street flooded due to its proximity to the Ohio River.
- The repetitive loss structure on Solida as well as the one located on Dawn Street, flood due to their proximity to Solida Creek.
- The repetitive loss structure on Slate Run as well as the one located on Guyan Trail, flood due to their proximity to Indian Guyan Creek.
- The repetitive loss structure on Wolf Creek floods due to its proximity to Wolf Creek.
- The repetitive loss structure on McKinney Creek floods due to its proximity to McKinney Creek.
- The three repetitive loss structures on SR 217 in Scottown flood due to their proximity to Indian Guyan Creek.
- The repetitive loss structure on SR 243 floods due to its proximity to Little Ice Creek.
- The repetitive loss structure located on Carns Avenue floods due to its proximity to Symmes Creek.
- The repetitive loss structure located on Meadow Drive floods due to its proximity to the Ohio River.
- The repetitive loss structure located on Admiral Drive as well as the structure located on Second Street flood due to their proximity to the Ohio River.

The following table lists each of the 26 repetitive loss structures and provides information about the number of claims for each property as well as the total claim amounts. Total claim amounts include building and contents payments.

Dollar Claim	Number of Claims
\$13,987.23	4
\$ 6,899.33	2
\$ 2,937.56	2
\$26,430.88	2
\$24,047.55	3
\$24,413.22	3
\$52,063.04	3
\$35,399.50	2
\$45,088.73	2
\$18,887.94	2
\$87,505.72	3
\$ 4,127.49	2
\$ 8,340.44	2
\$12,599.57	2
\$60,498.46	2
\$54,176.25	2
\$20,239.36	3
\$60,681.33	3
\$14,370.16	2
\$12,768.99	3
\$12,512.73	2
\$ 8,194.20	2
\$86,057.57	2
\$76,278.48	2
\$37,624.89	3
\$ 4,223.34	2
\$810,253.96	62

Source: FEMA data, as of 3/3/03

Four of these repetitive loss structures have been bought out through the Hazard Mitigation Grant Program (HMGP). Two of these buyouts were located on Burton Street, one was located on Fulton Street, and one on Meadow Drive.

Structure Inventory in Lawrence County

There are 2,615 at-risk structures in Lawrence County, according to the ODNR Floodplain Management Program.

Lawrence County Flood Mitigation Efforts

Lawrence County has participated in the HMGP Buy-Out Program following the 1997 Flood, however, this is the only flood mitigation effort that has been undertaken by the County, according to the Ohio Emergency Management Agency (OEMA). There are currently no flood mitigation efforts underway in Lawrence County.

Past Mitigation Efforts

Following the 1997 Flood, Lawrence County participated in an HMGP Buy-Out Program. The following subdivisions had parcels that were bought out as part of the program:

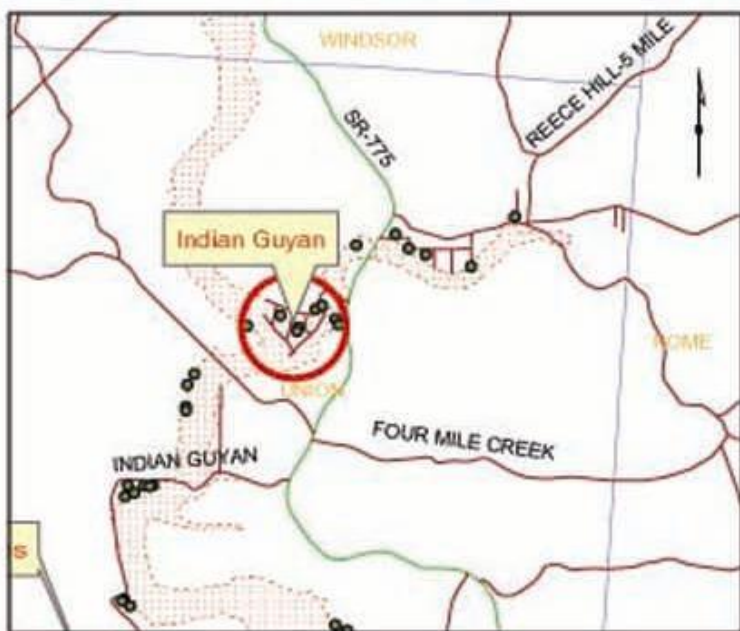
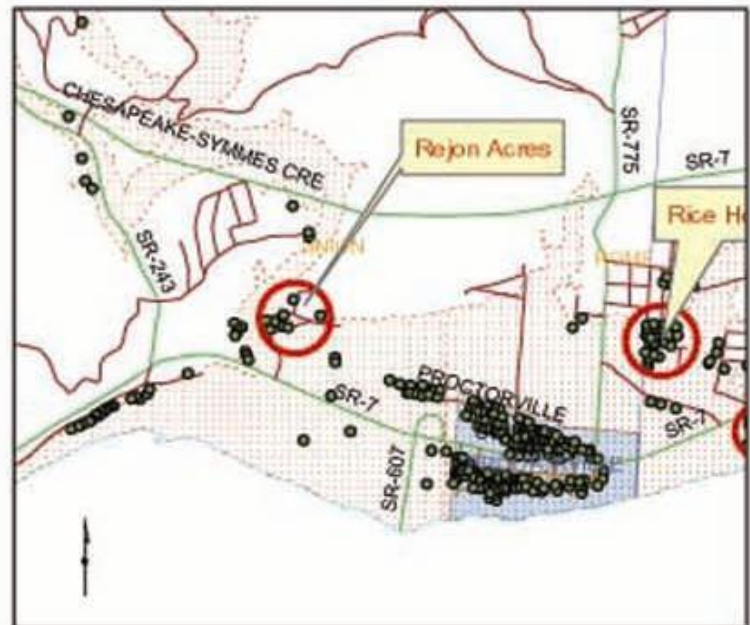
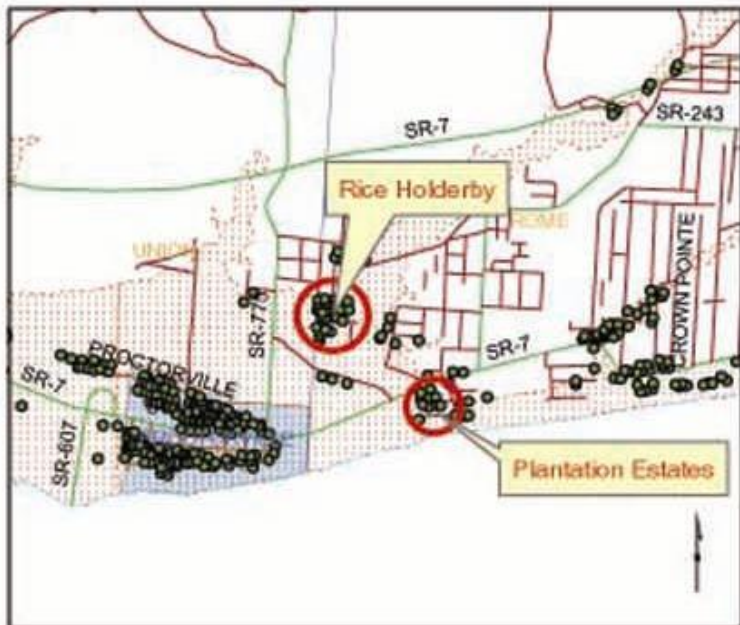
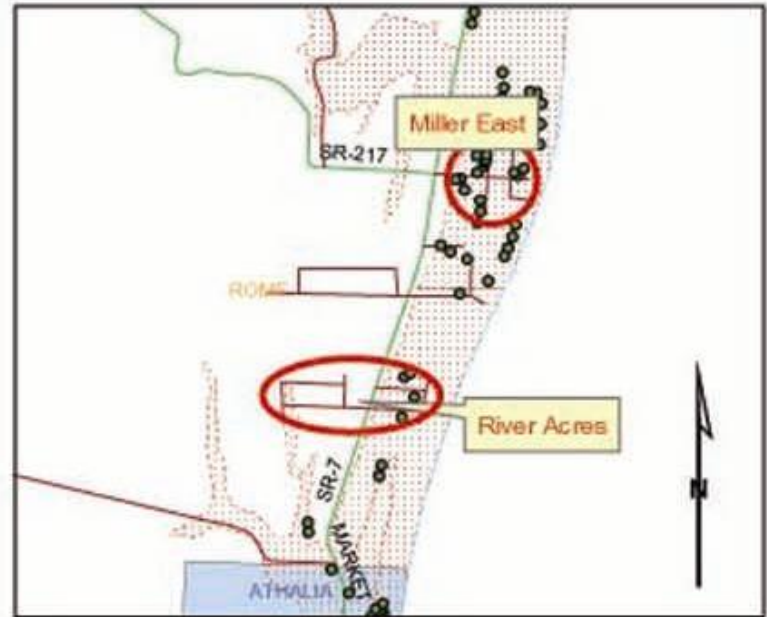
- Rice Holderby
- Indian – Guyan
- Miller East
- Rejon Acres
- River Acres
- Plantation Estates

Information on these buyout locations can be found in **Appendix 8**. An article taken from the FEMA website which describes the buyouts that occurred in Miller South, located in Lawrence County is included as **Appendix 9**. A figure depicting these locations can be found on the next page.

Lawrence County received two grants through the Hazard Mitigation Grant Program (HMGP) for mitigation projects, one totaling \$3,059,222 and \$2,734,200. The grant agreements can be found in **Appendix 10**.

Lawrence County HMGP Buyout Areas

DR - 1164 - OH
Declared March 4, 1997



Data Provided By: ODNR - Division of Water
Contact Information:

Ohio Department of Natural Resources
Division of Water
Floodplain Management Program
1939 Fountain Square Drive, Building 1.3
Columbus, Ohio 43224-1360
Phone: (614) 265-4724

Cartographer: Tim Beck
Date: 11/13/2003

Current Development Trends

Any development within floodplains can impact the direction, flow and level of the watercourse during periods of high water or flooding. If fill material is placed or a house constructed in a floodplain, the boundaries of the floodplain downstream will be altered. This results because structures or fill utilize valuable space that would otherwise act as a natural retaining area for floodwaters to spread and slow. As dangers in the floodplain increase downstream, developments within the floodplain are at higher risk of damage due to flooding. This damage includes upstream fill material and debris from destroyed structures colliding with edifices in the floodplain downstream. Many bridges are washed out during floods because river borne debris clog their free-flow area.

Because of the potential for loss of life, damage to public and private property, and financial considerations such as loans and insurance, five villages and the City of Ironton have floodplain development ordinances. The Villages of Athalia, Chesapeake, Coal Grove, Proctorville, and South Point all have a floodplain development ordinance in place.

Lawrence County is primarily rural in nature. The current development within Lawrence County has been primarily concentrated in the southeastern part of the County. This development is predominantly residential and is centered in Union and Rome Townships. The Villages of Proctorville and Chesapeake are located within Union Township and the Village of Athalia is located within Rome Township. These three villages have floodplain ordinances that should serve as a guide in keeping new development from being constructed in high hazard areas with respect to flooding.

Flood Damage Prevention Resolution

In 1995, the Flood Damage Prevention Resolution was adopted by the unincorporated areas of Lawrence County. This resolution applies to any areas of special flood hazard, which are defined in the resolution as “the land in the floodplain subject to a one percent or greater chance of flooding in any given year. Areas of special flood hazard are designated by the Federal Emergency Management Agency as Zone A, AE, AH, AO, A1-30, and A-99.” The areas of special flood hazard have been identified by FEMA in a scientific and engineering report entitled “Flood Insurance Study for Lawrence County-Unincorporated Areas.”

Under this resolution, any proposed development must be reviewed and a permit must be obtained from the Floodplain Administrator before construction or development can occur within any area of special flood hazard.

Hazard Assessment and Vulnerability Analyses

Lawrence County’s vulnerability to flooding is significant. The Ohio River is the major source of flooding for Lawrence County. The Ohio River has had several significant flood events during the past century, most notably the floods of 1913, 1937 and 1997. There are several other major streams in the County that can flood and cause in property. These include: Indian-Guyan Creek, Symmes Creek, Ice Creek and Storms Creek.

The flood of 1913 caused \$1.5 million dollars in property losses (1913 dollars). 24 houses were washed away in the flood. In 1937, 90% of Ironton was covered by water and damages totaled approximately \$3 million. The flood of 1997 caused \$2.5 million dollars damages to public infrastructure, roads, bridges, public buildings, etc., and the County received \$4.5 million in

assistance for housing and small business grants. Twenty thousand residents had to be evacuated during the flood. All these flood damage amounts are today's dollar value.

Potential Dollars Lost

There are approximately 2,615 structures in Lawrence County located in the floodplain, as numbered from the ODNR GIS structure inventory. Information was obtained from each of the seven participating jurisdictions on how many commercial structures are located in the floodplain in their communities. The number of structures in this list was then subtracted from the total number of floodplain structures for each community to yield the number of residential structures located in the floodplain. The underlying assumption here was that any structure that was not classified as commercial was thus classified as residential for the purposes of this analysis.

Average housing values for each of the seven participating communities were obtained from the U.S. Census website. The commercial values for each community were calculated from data obtained from the County Auditor's office. The data listed land and building values by use code for the various communities. The total building value was divided by the number of non-vacant parcels to obtain an average value for each community. These averages were then multiplied by the number of residential/commercial structures in each community. The results can be found in the following table:

Community	Residential At-Risk Structures	Median Value of Housing Units	Commercial At-Risk Structures	Median Value of Commercial Structures	Potential Residential Dollars Lost	Potential Commercial Dollars Lost
Athalia	70	\$65,800	3	\$5,814	\$4,606,000	\$17,440
Chesapeake	41	\$71,300	5	\$59,029	\$2,293,000	\$295,140
Coal Grove	147	\$55,400	15	-	\$3,850,000**	\$1,156,960**
Hanging Rock	41	\$75,000	0	\$88,073	\$3,075,000	-
Ironton	23	\$63,500	0	\$144,342	\$1,461,000	-
Proctorville	112	\$62,600	50	\$88,176	\$7,011,000	\$4,408,800
South Point	87	\$80,300	0	\$103,896	\$9,986,000	-
Unincorporated	1,985	\$69,400	36	\$108,000	\$137,759,000	\$3,889,900
Total	2,056		109		\$167,671,150	\$9,768,240

**Note: Information for Coal Grove was obtained from tax cards for the properties pulled by the village clerk, allowing for more detailed and accurate cost estimates. The values for commercial structures were not available for Coal Grove.

The total potential dollars lost for both residential and commercial structures was just under \$177,500,000.00.

Matrix Results for Flooding

Lawrence County All Natural Hazard Mitigation Plan	Rating Scale								Total
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable		
Flooding									
No Action.									0
The floodwall pump stations control systems are failing and replacement parts are not available. Seek emergency funding to replace floodwall pump station control system.	4.3	4.9	4.9	4.4	4.7	5	4.6		32.8
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	3.3	4.2	4.3	4.3	4.0	4.4	4.2		28.8
People are often not aware of the damage that floods can do. Educate public about flood damage prevention.	4.1	4.1	4	3.8	3.7	4.1	4.1		27.9
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.	3.8	4.1	4.3	4	3.8	3.8	4		27.8
Mobile homes are not anchored even though there are codes requiring this. Adopt & enforce anchoring criteria for mobile homes.	3.8	4.1	3.9	3.6	4.4	4.3	3.6		27.7
There are storm water drainage problems throughout the county, with numerous causes. Inventory storm water drainage problem areas.	3.5	3.8	4.2	4.0	4.1	3.8	4.0		27.3
Flood mapping is very expensive and the county does not have adequate funding to address the needs. Seek funding for flood mapping.	3.1	3.8	4.0	3.9	4.3	4.0	3.5		26.5
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.	3.3	3.6	4.2	3.6	3.8	4.2	3.4		26
Building in the floodplain requires flood resistant materials and proper construction methods. This is not often possible due to a lack of a local building code and inspection system. Investigate developing building codes and inspection system in jurisdictions without building codes.	3.5	3.6	4.4	3.5	4.4	4.3	2.3		26
Critical facilities should have an extra level of protection. Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level.	3.4	3.6	3.8	3.6	3.8	4.1	3.7		26
Watercourses are often altered without the proper permits and review of impacts. Educate the public regarding regulations pertaining to watercourse alterations.	3.0	3.7	4.0	3.6	4.0	3.6	3.3		25.3
Combined sanitary sewers often fill with flood waters, which then back up into structures. Seek funding for back-flow preventers in areas of combined sanitary sewers.	2.8	3.8	4.2	3.3	3.8	3.8	3.5		25.2
People are not aware of impending flood situations. Seek funding for weather radios.	2.9	3.7	3.8	3.5	3.3	3.2	3.7		24.1
There are critical facilities (such as police, fire departments, etc.) in the floodplain, but a lack of awareness that these facilities would be impacted by a flood. Identify critical facilities in the floodplain.	3.1	3.2	3.6	3.6	3.6	3.5	3.6		24.0
Zoning overlays would ensure that people are aware of the floodplain area. A zoning permit would trigger a floodplain review and permit. Investigate developing zoning regulations in jurisdictions without zoning.	3.5	3.1	3.8	3.2	3.7	4	2.3		23.6

The above matrix results show the average rating for all the Core Croup members. Each member filled out an individual matrix, and then the results for each hazard were averaged. The hazard of flooding had the most activities associated with it. The six top rated activities have been highlighted, however the other activities are equally important and should be re-evaluated during the monitoring process of the All Natural Hazards Mitigation Plan for Lawrence County.

The six highest rated activities within the Flooding hazard category include:

- Seek emergency funding to replace floodwall pump station control system.**
 This activity addresses the fact that the control systems at the floodwall pump stations are failing and replacement parts are unavailable, causing an increased safety risk for residents. By replacing these failing control systems, threats to residents' safety can be reduced.

- **Seek funding for debris removal in streams.**
This activity also serves as a means for reducing flood risk by removing the large amounts of debris in the streams that block the flow of floodwaters. Blockages pose a serious safety risk as they can cause the water level to rise substantially due to the inhibition of flow.
- **Educate the public about flood damage prevention.**
This activity is aimed at promoting awareness of the potential damages that floods can cause.
- **Develop backup plans in case of communication failures.**
This activity addresses the potential communication failures that can accompany a flood event. By having a backup plan, it ensures that responding to emergencies arising from the flooding event will not be interrupted.
- **Adopt and enforce anchoring criteria for mobile homes.**
By adopting and enforcing anchoring regulations, serious threats to the safety of residents can be reduced as well as can the potential damages to the structures.
- **Inventory storm water drainage problem areas.**
This activity will allow the causes of the drainage problems to be discovered and in having knowledge about the causes, efforts can be initiated to correct the problems.

4.5 Winter Storms

Winter Storm History in Lawrence County

Lawrence County, like most communities in Ohio, is susceptible to severe winter storms. This past winter, Lawrence County as well as 20 other counties located in Southern Ohio experienced nature's wrath in the form of a severe ice storm.

Significant Events

Lawrence County has had experienced several winter storms causing significant damage. Some of the most memorable and costly are described below.

Ice Storm 2003. The ice storm that hit Lawrence County during the Winter of 2003 caused significant damages. One Lawrence County trustee described the area as resembling a war zone. Ice accumulated on utility lines, trees, and roadways and caused major infrastructure damage. The Ironton area reported power outages for 5,959 of its residents. The Chesapeake area reported power outages for 1,015 of its residents. Businesses were also without power and lost inventory and suffered economic losses from lack of customers. Restoration of services was very slow due to the widespread nature of the emergency and due to road inaccessibility. It was estimated that 80-90% of the roadways had been impacted by the storm by fallen trees and utility lines immediately following the storm.

After the ice storm of 2003, many residents of Lawrence County received aid through the Individuals and Households Program (IHP). The IHP is a combined FEMA and State program. When a major disaster occurs, this program provides money and services to people in the declared area whose property has been damaged or destroyed and whose losses are not covered by insurance.

The following table shows the FEMA Individual Assistance Update for the winter ice/snow storms of Feb. 14 – March 18, 2003:

County	Individuals and Households Program (IHP)			SBA: Home/Personal Property Loans		SBA: Business Loans	
	Registrations	Approved	Amount	Approved	Amount	Approved	Amount
Lawrence	449	216	\$276,729.62	11	\$106,300	1	\$4,100

For more details regarding the Winter 2003 storm event, please see **Appendix 11**.

February 11, 1994 - Ice Storm - \$5.5 Million. Heavy freezing rain, for the second time within a week, accumulated one-half to one and one-half inches. One to two inches of snow fell in many areas before the change to freezing rain. Power lines and trees were downed, and some areas were without electricity for several days. A number of roads were closed due to the icy conditions and many other roads became virtually impassible. A number of falls and accidents occurred and numerous traffic accidents were reported. The thick glaze continued to severely hamper travel into the 12th.

February 11, 1995 - Extreme Cold - \$100 Thousand. Arctic air spread across all of Ohio on the 11th, producing low temperatures between zero and 10 below on the morning of the 12th and close to zero on the 13th. In Columbus (Franklin 055) a 19-month-old child was found dead of exposure in her parents' backyard apparently after slipping outdoors unnoticed. A couple apparently got lost in their car near Newark (Licking 056). The husband, age 82, set out on foot to find help and was found frozen to death. His wife, age 79, froze to death in the car. In Ironton (Scioto 088) an 18-year-old woman was found dead of exposure after her car went over an embankment and was not found until some time later. A number of water line breaks occurred.

February 3, 1998 - Winter Storm - \$250 Thousand. A slow moving coastal storm and a prolong period of easterly wind aloft, resulted in several periods of snow, sleet, and freezing rain. The deepest snow cover over southeast Ohio was in Lawrence, Gallia, Jackson and Vinton Counties. On the 6th, Ironton had 9 inches on the ground, South Point and Waterloo had 7 inches, Patriot of Gallia County had 8 inches, the City of Jackson had 5 inches, while McArthur had 4 to 5 inches. No old snow was on the ground prior to the storm. A roof to a South Point home caved in, due to the weight of the snow. More sleet than snow fell further to the northeast, resulting in 1 to 3 inches of snow and ice over Meigs and Athens Counties.

Winter Storms

The leading cause of death during winter storms is transportation accidents. Preparing your vehicle for the winter season, and knowing how to react if stranded or lost on the road are vital to safe winter driving. Another major problem is the lack of concern; citizens have for frigidly cold temperatures during the Ohio winters, when the wind chill can dramatically affect the temperature outside, causing frostbite in a matter of minutes.

Wind Chill

Wind Chill is a calculation of how cold it feels outside when the effects of temperature and wind speed are combined. A strong wind combined with a temperature just below freezing can have the same effect as a still air temperature 35°F colder.

Winter Storm Watches and Warnings

A winter storm **watch** indicates that severe winter weather may affect your area. A winter storm **warning** indicates that severe winter weather conditions are definitely on the way. A blizzard warning signifies that large amounts of falling or blowing snow, and sustained winds of at least 35 mph are expected for several hours.

Lawrence County Mitigation Efforts

According to the Ohio Emergency Management Agency (OEMA), there are currently no mitigation efforts underway, nor have there been any in the recent past.

Current Development Trends

Due to the non-site specific nature of this hazard, current development trends have no effect. Lawrence County is primarily rural in nature. Current development within Lawrence County has been primarily concentrated in the southeastern part of the County. This development is predominantly residential and is centered in Union and Rome Townships. Developers in these areas should give greater consideration to the importance of road design to maximize accessibility during a winter storm event. In these townships especially, more effort should be placed on maintenance of trees in utility areas to reduce the number of power outages due to fallen trees and/or branches due to the accumulation of ice and/or snow.

Hazard Assessment and Vulnerability Analyses / Potential Dollars Lost

Because winter storms are random in nature, the Core Group has chosen to look at historic events to determine Lawrence County's susceptibility. According to the National Climatic Data Center (NCDC), there have been 14 ice or snow events in Lawrence County since 1994, totaling over \$11 million in damages. (Please see **Appendix 12** for more detailed information on each storm event.) Winter storm events have occurred in Lawrence County annually since 1998. In 2000 and 2002, there were two winter storm events. The Ice Storm of 2003 caused significant damages in infrastructure as well as widespread power outages. The County received \$387,129 in assistance from FEMA after the event.

Matrix Results

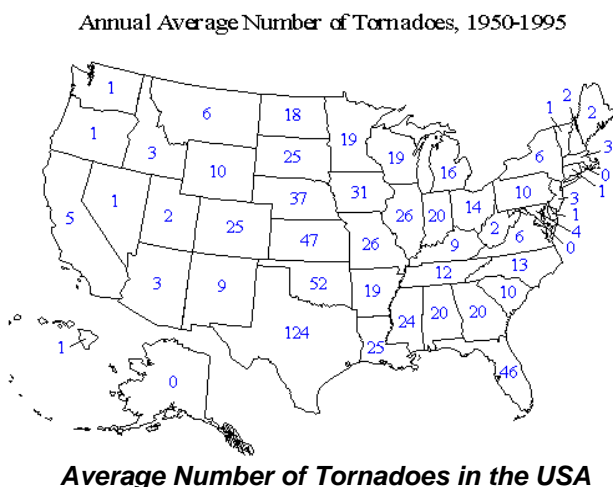
Lawrence County All Natural Hazard Mitigation Plan	Evaluation Criteria							
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Winter Storms								
No Action.								0
The county does not have adequate funding for snow removal equipment. Seek funding for equipment.	3.6	4.1	4.2	4.3	4.3	4.1	4.2	28.7
Additional equipment is needed to respond to winter storm events. Identify equipment needs.	3.9	4.0	4.1	4.2	4.2	4.2	4.0	28.5
There is a lack of available equipment and contractors to handle snow removal. Develop list of equipment resources and contractors.	3.9	4.0	4.1	4.1	4.2	3.9	4.1	28.3
The public is not aware of how the properly respond to winter storms. Educate public about winter storm risks and damage prevention	3.8	3.8	4.1	4.2	4.1	4.1	4.2	28.3

The above matrix shows the average rating for all of the Core Group members. The four highest rated activities are highlighted and are listed as follows:

- Seek funding for snow removal equipment.**
This activity is in response to the inadequate funding available to communities for snow removal equipment.
- Identify equipment needs.**
This activity goes hand in hand with the activity listed above. The current equipment must be inventoried to determine where the needs lie.
- Develop a list of equipment resources and contractors.**
There is a current lack of available equipment and contractors to handle snow removal. By creating a list of available equipment resources and contractors, these gaps can be filled in and response time can be quickened.
- Educate the public about winter storm risks and damage prevention.**
This activity is designed to address the lack of awareness of the public as to how to properly respond to winter storms.

4.6 Tornado History in Lawrence County

Tornadoes are considered the most violent atmospheric phenomenon on the face of the earth, having winds estimated at 300 mph in large tornadoes. Although the number of tornadoes in Ohio does not rank high compared to other states in the United States, the State does average around 14 tornadoes a year. Ohio's peak tornado season runs from April through July, with most tornadoes occurring between 2-10 p.m. Even though June has been the month with the most tornado occurrences, many of the State's major tornado outbreaks have taken place in April and May. However, history has shown that tornadoes can occur during any month of



the year and at any time of the day or night. Many of these tornadoes are weak (F0 or F1 on the Fujita Scale), but Ohio has been struck by some of the most destructive (F5) tornadoes ever, including the April 3, 1974 tornado which devastated Xenia, killing over 30 people and destroying 2,000 buildings.

What is a Tornado?

Tornadoes are produced from the energy released during a thunderstorm, but account for only a tiny fraction of the overall energy generated by a thunderstorm. What makes them particularly dangerous is that the energy is concentrated in a small area, perhaps only a hundred yards across. Not all tornadoes are the same, of course, and science does not yet completely understand how a portion of a thunderstorm's energy becomes focused into something as small as a tornado.

Tornadoes occur whenever and wherever conditions are right, but they are most common in the central plains of North America, east of the Rocky Mountains and west of the Appalachian Mountains. They occur primarily during the spring and summer – the tornado season comes early in the south and later in the north according to the seasonal changes in relation to latitude – usually during the late afternoon and early evening. They have been known to occur in every state in the United States and every continent on the earth, any day of the year, and at any hour.

The damaging strong winds generated from tornadoes can reach 300 mph in the most violent tornadoes, causing automobiles to become airborne, rip ordinary homes to shreds, and turn broken glass and other debris into lethal missiles. The biggest threat to living creatures (including humans) during tornadoes is flying debris and the risk of being tossed about in the wind. Contrary to previous belief, it is not true that the pressure in a tornado contributes to damage by making buildings "explode."

Today, the development of Doppler radar has made it possible, under certain circumstances, to detect tornado winds with radar. However, spotters remain an important part of the system to detect tornadoes, because not all tornadoes occur in situations where the radar can "see" them. Ordinary citizen volunteers make up what is called the SKYWARN (www.skywarn.org) network of storm spotters, who work with their local communities to watch out for approaching tornadoes to ensure that appropriate action is taken during tornado events. Spotter information is relayed to the National Weather Service, which operates the Doppler radars and issues warnings (usually relayed to the public by radio and TV) for communities ahead of the storms. They utilize all the information they can obtain from weather maps, modern weather radars, storm spotters, monitoring power line breaks, and so on.

Although the process by which tornadoes form is not completely understood, scientific research has revealed that tornadoes usually form under certain types of atmospheric conditions. Those conditions can be predicted, but it is not yet possible to predict in advance exactly when and where they will develop, how strong they will be, or precisely what path they will follow. There are some "surprises" every year, when tornadoes form in situations that do not look like the right conditions in advance, but these are becoming less frequent. Once a tornado is formed and has been detected, warnings can be issued based on the path of the storm producing the tornado, but even these cannot be absolutely precise regarding who will, or will not, be struck.

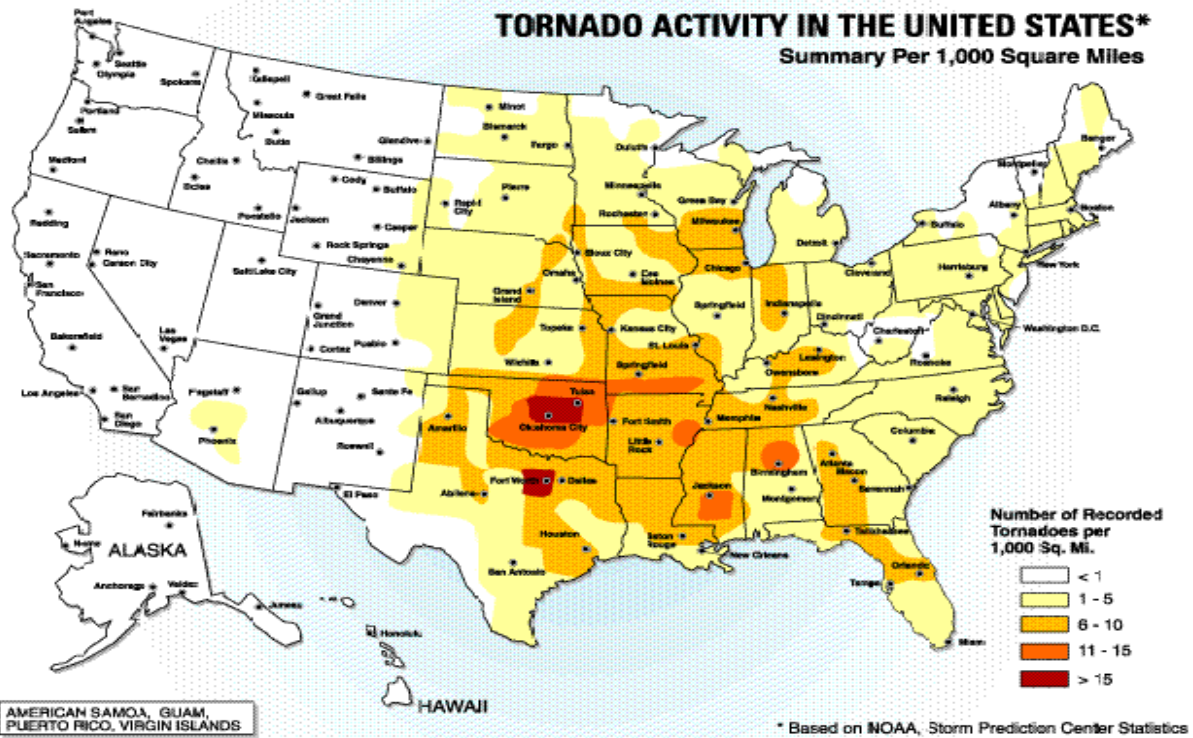


Figure 1.1 The number of tornadoes recorded per 1,000 square miles
Based on NOAA Storm Prediction Center Statistics

The table below shows that although the State of Ohio may not have the most tornadoes, those that do hit Ohio are significant in damage and have all the indication factors of large-scale tornadoes.

Rank	Total Number of Tornadoes	Deaths per 10,000 sq. miles	Number of Killer Tornadoes	Total Tornado Path Length per 10,000 sq. miles	Killer Tornadoes as a % of all Tornadoes	Annual Tornadoes per 10,000 sq. miles
1	Texas	Massachusetts	Texas	Mississippi	Tennessee	Florida
2	Oklahoma	Mississippi	Oklahoma	Alabama	Kentucky	Oklahoma
3	Florida	Indiana	Arkansas	Oklahoma	Arkansas	Indiana
4	Kansas	Alabama	Alabama	Iowa	Ohio	Iowa
5	Nebraska	Ohio	Mississippi	Illinois	Alabama	Kansas
6	Iowa	Michigan	Illinois	Louisiana	Mississippi	Delaware
7	Missouri	Arkansas	Missouri	Kansas	North Carolina	Louisiana
8	Illinois	Illinois	Indiana	Indiana	Michigan	Mississippi
9	S Dakota	Oklahoma	Louisiana	Nebraska	New York	Nebraska
10	Louisiana	Kentucky	Tennessee	Wisconsin	Massachusetts	Texas

The Fujita scale to the right is the mechanism used to determine the potential type of tornado that may have affected a particular community. It is based on velocity of wind and the type of damage the tornado caused.

Lawrence County Tornado Events

Lawrence County lays in the southern most tip of the State of Ohio. Because of the geography and prevailing weather patterns in the spring and summer, storm systems produce several tornadoes across southern Ohio each year. Records since 1950 suggest that Lawrence County's tornadoes have a ten percent chance of annual occurrence.

Tornado Path Map

The map on the following page shows that tornadoes, as a non-site specific hazard, are a random occurrence best mitigated by planning ahead. The community is best served by having well informed officials who instruct their residents about tornado dangers, in turn.

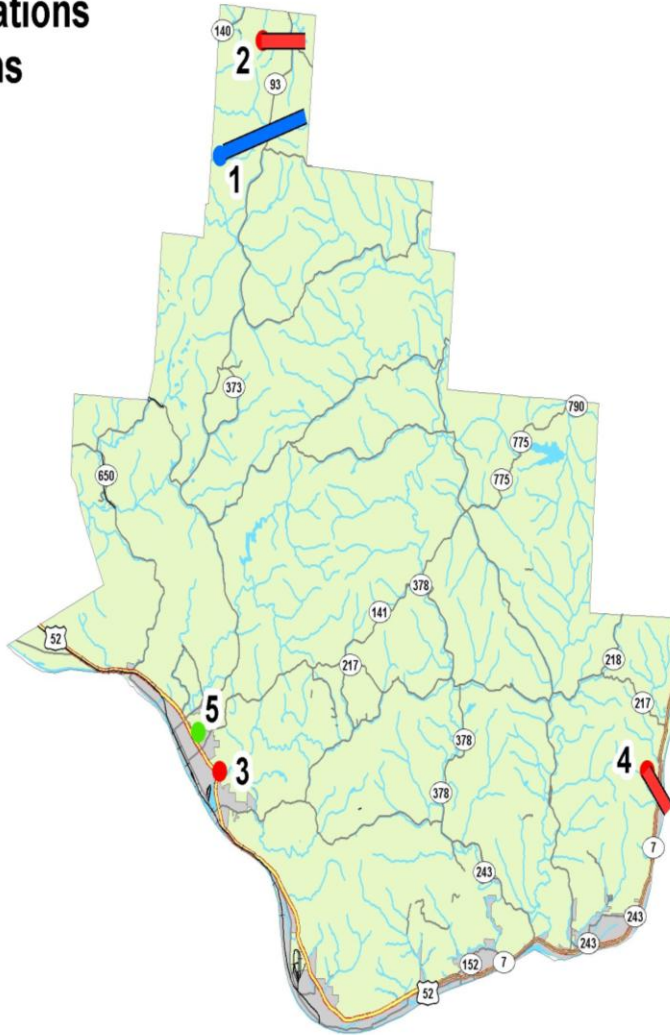
FUJITA SCALE FOR TORNADOES	
F-0 Weak	Wind: 40-72 mph Light Damage: Some chimneys damaged, twigs and branches broken off trees, shallow-rooted trees pushed over, signboards damaged, some windows broken
F-1 Weak	Wind: 73-112 mph Moderate Damage: Surface of roofs peeled off, mobile homes pushed off foundations or overturned, outbuildings demolished, moving autos pushed off the roads, trees snapped or broken; beginning of hurricane speed winds
F-2 Strong	Wind: 113-157 mph Considerable Damage: Roofs torn off frame houses, mobile homes demolished, frame houses with weak foundations lifted and moved, large trees snapped or uprooted, light-object missiles generated
F-3 Strong	Wind: 158-206 mph Severe Damage: Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted, heavy cars lifted off the ground and thrown, weak pavement blown off the roads
F-4 Violent	Wind: 207-260 mph Devastating Damage: Well-constructed houses leveled, structures with weak foundations blown off the distance, cars thrown and disintegrated, trees in forest uprooted and carried some distance away
F-5 Violent	Wind: 261-318 mph Incredible Damage: Strong frame houses lifted off foundations and carried considerable distance to disintegrate, automobile-sized missiles fly through the air in excess of 300 feet, trees debarked, incredible phenomena will occur.

Source: *NCDC WEBSITE*

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 LAWRENCE	04/23/1968	1530	Tornado	F5	0	1	0K	0
2 LAWRENCE	06/02/1980	1735	Tornado	F1	0	0	2.5M	0
3 LAWRENCE	07/12/1980	1530	Tornado	F1	0	0	25K	0
4 LAWRENCE	06/21/1981	1520	Tornado	F0	0	0	25K	0
5 Athalia	08/09/2000	07:26 PM	Tornado	F1	0	0	200K	0
6 Ironton	05/10/2003	05:35 PM	Funnel Cloud	N/A	0	0	0	0
TOTALS:					0	1	2.750M	0

Key: **Mag:** Magnitude, **Dth:** Deaths, **Inj:** Injuries, **PrD:** Property Damage, **CrD:** Crop Damage

Tornado Locations and Paths



Legend

Tornado Locations / Magnitude

- F0
- F1
- F5

Streams

Communities



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Tornado Mitigation Efforts

According to the Ohio Emergency Management Agency (OEMA), there are currently no mitigation efforts underway, nor have there been any in the recent past.

Current Development Trends

Due to the non-specific nature of this hazard, current development trends have no effect other than the increased population that would be susceptible to a tornado event within Lawrence County's boundaries. Lawrence County is primarily rural in nature. Current development within Lawrence County has been primarily concentrated in the southeastern part of the County. This development is predominantly residential and is centered in Union and Rome Townships. In these townships especially, more effort should be placed on maintenance of trees in utility areas

to reduce the number of power outages due to fallen trees and/or branches during a tornado event.

Lawrence County does not have a countywide building code, however, the County recently adopted the Ohio Building Code earthquake standards, which apply to commercial/industrial structures only. Please see **Appendix 13** for more detailed information on which buildings these standards apply to.

Hazard Assessment and Vulnerability Analyses

Based on the knowledge that tornadoes are a random event, the Core Group has decided to look at tornadoes as a hazard of chance. The best way to deal with a random hazard event is to look at historic information and try to be as prepared as possible. There have been 5 tornado events and one funnel cloud reported in Lawrence County since 1968 (see table on page 39). The Core Group realized that tornadoes are usually accompanied by other hazards when they affect their community. In fact, when tornadoes hit a community they are typically coupled by other natural events such as high winds, thunderstorms, lighting and possibly flash floods.

Potential Dollars Lost

Since 1968, there have been 5 tornado events and one funnel cloud reported in Lawrence County with damages totaling \$2.75 million in today's dollar value. Based on the information available and the number of events that have occurred in Lawrence County, the average amount of damage incurred by a tornado is \$458,333 per event.

Matrix Results

Lawrence County All Natural Hazard Mitigation Plan	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Tornadoes								
No Action.								0
There are gaps in the tornado warning system or areas that need improvement. Seek funding to improve the tornado warning systems.	3.8	4.1	4.2	4.1	4.2	4.2	4.3	28.8
The public is not aware of what to do in a tornado event. Educate public about protection during a tornado.	3.9	4.1	4.0	4.1	4.0	4.2	4.0	28.3
Tornadoes often destroy communication systems. Develop back-up plans in case of communication failures.	3.6	4.0	4.2	4.0	4.2	4.2	4.1	28.2
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	3.5	4.1	4.0	4.0	4.0	4.2	4.2	28.1
Mobile homes are more prone to wind damage. Adopt & enforce anchoring criteria for mobile homes.	3.6	4.1	4.0	3.6	4.4	4.3	3.6	27.6
Propane tanks can become airborne during a tornado, causing an additional explosion hazard. Adopt & enforce anchoring criteria for propane tanks.	3.2	3.7	4.3	3.9	4.2	4.1	3.3	26.7
There is a lack of adequate tornado shelters in the county. Identify areas where tornado shelters are needed.	2.9	3.6	3.7	3.7	4.0	3.6	3.8	25.5
Anchoring of mobile homes is costly to the owner and the county does not have funds to address this. Seek funding for anchoring of mobile homes.	2.7	3.4	3.8	3.4	4.0	4.1	3.4	24.8
Buildings are not constructed to resist high winds due to a lack of building code and inspection system. Investigate developing building codes and an inspection system in jurisdictions without them.	2.9	2.6	3.8	3.3	3.8	3.6	2.9	22.9
The public is not aware of dangerous weather situations. Seek funding for weather radios.	2.7	3.5	3.5	3.2	3.5	3.3	3.3	22.8
Tornado shelters are expensive and the county does not have adequate funding. Seek funding for tornado shelters.	3.0	3.2	3.4	3.3	3.5	3.2	3.2	22.6

The above matrix shows the average rating for all members of the Core Group. The highest rated activities are highlighted and are listed as follows:

- ***Seek funding to improve the tornado warning system.***
This activity addresses the gaps that exist in the current system and in doing so, increases the efficiency of the warning system to reach all residents in the County.
- ***Educate the public about protection during a tornado.***
The public is not aware of what to do in a tornado event. By providing information about protection during a tornado, potential dangers can be averted.
- ***Develop backup plans in case of communication failures.***
This activity addresses the potential communication failures that can accompany a flood event. By having a backup plan, it ensures that responding to emergencies arising from the flooding event will not be interrupted.
- ***Encourage maintenance of trees in right-of-way areas.***
This activity addresses the fact that trees are often destroyed in high winds, taking down power and communication lines. By maintaining trees in right-of-way areas, power and communication outages can be minimized.

4.7 Earthquake History in Lawrence County

Southeastern Ohio has been the site of at least 10 felt earthquakes with epicenters in the State since 1776. The 1776 event, recorded by a Moravian missionary, has a very uncertain location. Earthquakes near Portsmouth (Scioto County) in 1901, near Pomeroy (Meigs County) in 1926, and near Crooksville (Perry County) in 1952 caused minor to moderate damage. There have been two earthquakes recorded in Lawrence County. The first one occurred in 1883, and was between a 3.0 and 3.5 in magnitude. The second earthquake, which occurred on May 14, 1995, was found to be an earthquake of 2.5-magnitude.

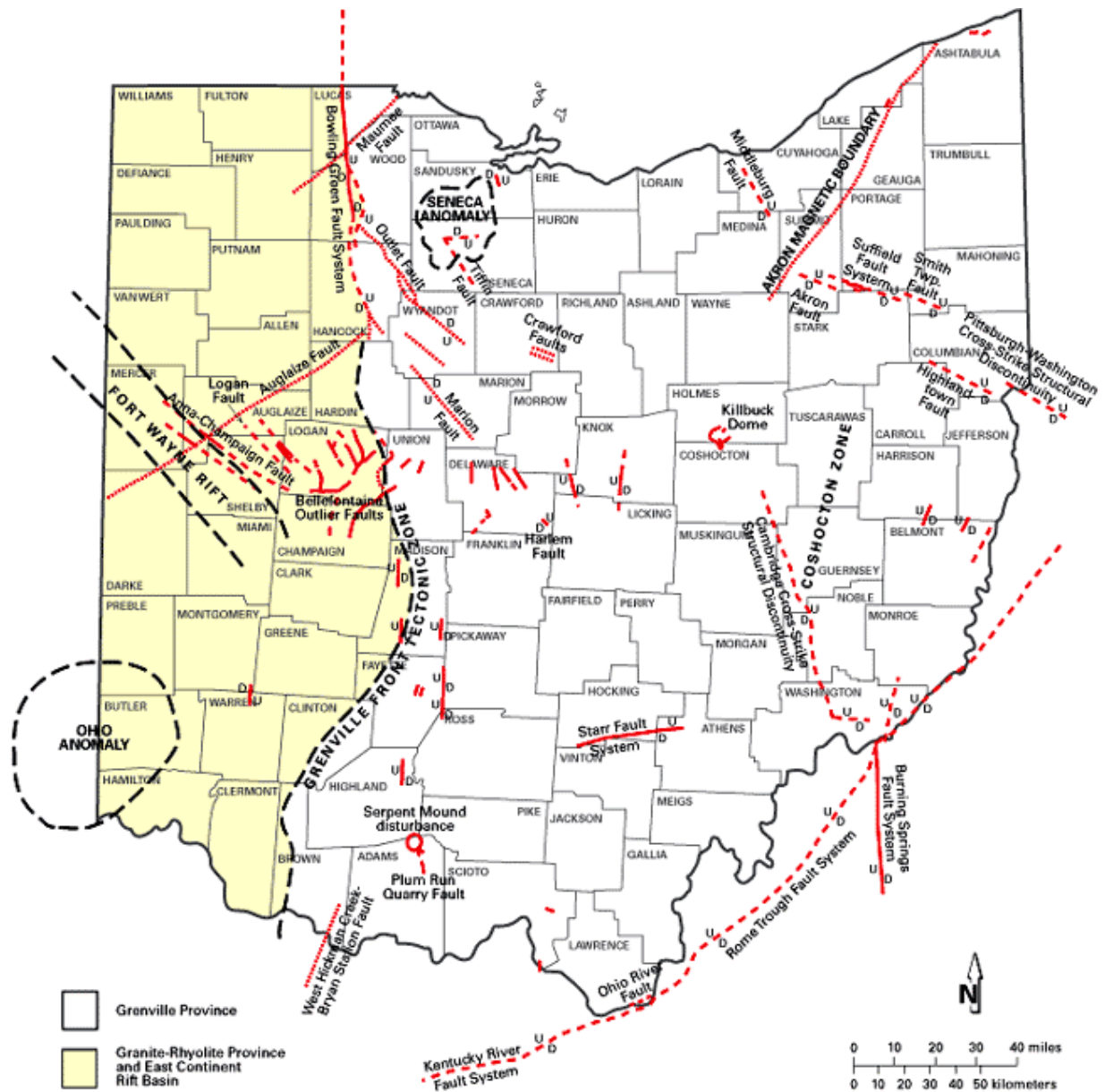
It would be surprising to many Ohioans that the State has experienced more than 120 earthquakes since 1776, and that 14 of these events have caused minor to moderate damage. The largest historic earthquake in Ohio was centered in Shelby County in 1937. This event, estimated to have had a magnitude of 5.5 on the Richter scale, caused considerable damage in Anna and several other western Ohio communities, where at least 40 earthquakes have been felt since 1875. Northeastern Ohio, east of Cleveland, is the second most active area of the state. At least 20 earthquakes are recorded in the area since 1836, including a 5.0 magnitude event in 1986 that caused moderate damage. A broad area of southern Ohio has experienced more than 30 earthquakes.

Lawrence County Earthquake Risk Zone

According to Candice Sherry, Ohio Earthquake Program Manager, Lawrence County and the southern portion of the State of Ohio is not one of the more active areas as it relates to earthquakes. However, based on their geology Lawrence County is at high risk as it relates to potential damage caused by an earthquake. This is due to the loose soil structure and poor adhesion of moraine deposits left from prior glaciations.

Seismic risk in Ohio, and the eastern United States in general, is difficult to evaluate because earthquakes are generally infrequent in comparison to plate-margin areas such as California.

Also, active faults do not reach the surface in Ohio and therefore cannot be mapped without the aid of expensive subsurface techniques. The figure below shows the various fault systems and tectonic zones located within the State:



Source: <http://www.dnr.state.oh.us/OhioSeis/html/fltmap.htm>

A great difficulty in predicting large earthquakes in the eastern United States is that the recurrence interval – the time between large earthquakes – is commonly very long, on the order of hundreds or even thousands of years. As the historic record in most areas, including Ohio, is only on the order of about 200 years – an instant, geologically speaking – it is nearly impossible to estimate either the maximum magnitude or the frequency of earthquakes at any particular site.

Earthquake risk in the eastern United States is further compounded by the fact that seismic waves tend to travel for very long distances. The relatively brittle and flat-lying sedimentary

rocks of this region tend to carry these waves throughout an area of thousands of square miles for even a moderate-size earthquake. Damaging ground motion would occur in an area about 10 times larger than for a California earthquake of comparable intensity.

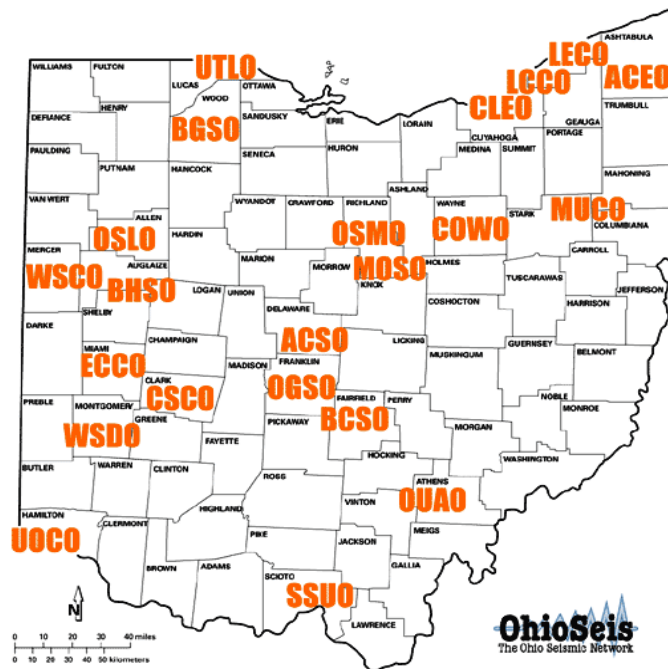
An additional factor in earthquake risk is the nature of the geologic materials upon which a structure is built. Ground motion from seismic waves tends to be magnified by unconsolidated sediments such as thick deposits of clay or sand and gravel. Such deposits are extensive in Ohio. Buildings constructed on bedrock tend to experience much less ground motion, and therefore less damage. Geologic maps, such as those prepared by the Ohio Division of Geological Survey, delineate and characterize these deposits. Geologic mapping programs in the state geological surveys and the U.S. Geological Survey are therefore critical to public health and safety.

The brief historic record of Ohio earthquakes suggests a risk of moderately damaging earthquakes in the western, northeastern, and southeastern parts of the State. Whether these areas might produce larger, more damaging earthquakes is currently unknown, but detailed geologic mapping, subsurface investigations, and seismic monitoring will greatly help in assessing the risk.

Monitoring of Earthquakes

The Ohio Department of Natural Resources (ODNR) Division of Geological Survey has established a 22 station cooperative network of seismograph stations throughout the State in order to continuously record earthquake activity. The network, which went on line in January 1999, ended a five-year gap during which there was only one operating station in Ohio. The state was dependent on seismographs in Kentucky and Michigan to record Ohio earthquakes.

The 22 stations of the new seismograph network, which is called OhioSeis, are distributed across the state, but are concentrated in the most seismically active areas or in areas that provide optimal conditions for detecting and locating very small earthquakes that are below the threshold of human notice. These small micro earthquakes are important because they occur more frequently and help to identify the location of faults that may periodically produce larger, potentially damaging earthquakes.



The OhioSeis seismograph stations are located at colleges, universities and other institutions, employing new technology that not only makes them very accurate, but also relatively inexpensive and easy to operate and maintain. In contrast to the old technology, in which a pen made a squiggly line on a paper drum, the new system is entirely digital and uses a Macintosh desktop computer to continuously record and display data. Two other innovations have made the system unique. An inexpensive Global Positioning System (GPS) receiver is

used to keep very precise time on the continuously recorded seismogram, and each station's computer is connected to the Internet for rapid data transfer.

Each OhioSeis station is a cooperative effort. Seismometers, the instruments that detect Earth motions, and the Division of Geological Survey purchased other seismic components with funds provided by the Federal Emergency Management Agency (FEMA) through the Ohio Emergency Management Agency, as part of the National Earthquake Hazards Reduction Program. The computers and Internet connection were purchased and provided by the cooperating institutions.

The Division of Geological Survey is coordinating the seismic network and has established the Ohio Earthquake Information Center at the Horace R. Collins Laboratory at Alum Creek State Park, north of Columbus. This facility functions as a repository and laboratory for rock core and well cuttings, but has a specially constructed room for earthquake recording. The seismograph system allows for very rapid location of the epicenter and calculation of the magnitude of any earthquake in the State. The earthquake records, or seismograms, from at least three seismograph stations are needed to determine earthquake locations (epicenters). These records can be downloaded from the Internet at any station on the network, and location and magnitude can be determined. Small earthquakes were in many cases not even detected by distant, out-of-date seismograph stations.

The OhioSeis network provides a whole new dimension of understanding about the pulse of the Earth beneath Ohio. Although the new seismograph network will not predict earthquakes or provide an alert prior to an event, it will provide insight into earthquake risk in the State so that intelligent decisions about building and facility design and construction, insurance coverage and other planning decisions can be made by individuals, business and industry, and governmental agencies.

The closest monitoring station to Lawrence County is located at the Shawnee State University.

Station SSOU

Location:
Shawnee State University
Department of Natural Science
940 Second Street
Portsmouth, OH 45662

Contact Person:

Dr. Jeffrey A. Bauer
740-355-2421 (Office)
740-355-2501 (FAX)
jbauer@shawnee.edu

Lat: 38.731° North
Long: 82.993° West
Elev: 162 m

The following is a table that describes the Richter Scale, which provides a measure of magnitude, and the Modified Mercalli Scale, which is a scale of intensity:

Seismic Magnitude / Intensity Scales		
Scale		Description
Magnitude	Mercalli	
0-2.9	I	Detected only by sensitive instruments
	II	Felt only by a few persons at rest, especially on upper floors of buildings; delicately suspended objects may swing
	III	Felt noticeably indoors, especially on upper floors of buildings, but not always recognized as earthquake; standing autos may rock slightly; vibrations like a passing truck
2.9-4.1	IV	During the day, felt indoors by many, outdoors by few; at night, some awakened; dishes, windows, doors disturbed; walls make creaking sound; sensation like heavy truck hitting building; standing autos rock noticeably
	V	Felt by most people; some breakage of dishes, windows, and plaster; unstable objects overturned; disturbance of trees, poles, and other tall objects
4.1-5.4	VI	Felt by all, many frightened and run outdoors; some heavy furniture may move; falling plaster and chimneys, damage slight
	VII	Everyone runs outdoors; damage to buildings varies depending on quality of construction; noticed by people driving autos
5.4-7.3	VIII	Panel walls thrown out of frames; walls, monuments, chimneys fall; sand and mud ejected; drivers of autos disturbed
	IX	Buildings shifted off foundations, frame structures thrown out of plumb; ground cracked; underground pipes broken
	X	Most masonry and frame structures destroyed*; ground badly cracked, rails bent, landslides; sand and mud shift; water splashes over river banks
7.3 +	XI	Few structures remain standing; bridges destroyed; broad fissures in ground, pipes broken, landslides, rails bent
	XII	Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up into the air

- The Mercalli scale is a semi-quantitative linear scale.
- The Richter scale is quantitative logarithmic scale.
- *Buildings constructed with special anti-earthquake techniques, are able to withstand tremors of up to 8.5 on the Richter scale.

Severity	Scale	
	Magnitude	Mercalli
Mild	0-2.9	I-III
Moderate	2.9-4.1	IV-V
Intermediate	4.1-5.4	VI-VII
Severe	5.4-7.3	VIII-X
Catastrophic	7.3 +	XI-XII

Source: www.dnr.state.oh.us/OhioSeis/html/scales.htm

Lawrence County Earthquake Mitigation Efforts

According to the Ohio Emergency Management Agency (OEMA), there are currently no earthquake mitigation efforts underway, nor have there been any in the recent past.

Current Development Trends

Due to the non-site specific nature of this hazard, current development trends have no effect other than the increased population that would be susceptible to earthquakes within Rome and Union Townships where the majority of the new residential development is occurring. Public Service Announcements may positively affect the communities if an earthquake were to occur.

Lawrence County lacks a countywide building code, however, within the past several months, the County adopted the Ohio Building Code earthquake standards, which apply to commercial/industrial structures only. Please refer to **Appendix 13** for more detailed information on which buildings the code applies to.

Hazard Assessment and Vulnerability Analyses

According to the Ohio Department of Natural Resources Geological Survey, there are only two earthquake events recorded for Lawrence County. The first occurred in 1883, and was between a 3.0 and 3.0 in magnitude. The second occurred in 1995, and was recorded as falling in the 2.0-2.9 magnitude category. Since the occurrence of earthquakes is relatively rare in Lawrence County, perhaps the best approach to analyzing the vulnerability to an earthquake might be to look at how other states and communities and how they have dealt with earthquake preparedness.

Potential Dollars Lost

Due to the non-site specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. Due to the historically rare occurrence of this hazard in Lawrence County, no dollar calculations have been considered at this time.

Lawrence County All Natural Hazard Mitigation Plan	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Earthquakes								
No Action.								0
The public is not aware of the risks from earthquakes. Educate public about earthquake potential.	3.7	4.0	4.0	3.9	4.1	3.6	4.2	27.5
Utility lines are often damaged during earthquakes, increasing risks to people and structures. Identify areas where additional utility cut-offs are needed to isolate utility systems.	3.2	3.6	4.0	3.7	4.0	3.7	3.8	26.0
Communications often fail during an earthquake. Develop back-up plans in case of communication failures.	3.4	3.8	3.9	3.6	3.8	3.7	3.8	26.0
Buildings are not constructed to resist earthquakes due to a lack of a building code. Investigate developing building codes and inspection system in jurisdictions without building codes.	3.1	3.8	4.1	3.4	4.2	3.7	3.0	25.3

Matrix Results for Earthquakes

The matrix results above show the averaged results from all the Core Croup members for this hazard. The highest ranked activities are highlighted and are listed as follows:

- **Educate the public about earthquake potential.**
This activity addresses the fact that many residents are unaware of the risks associated with earthquakes due to their infrequent occurrence.
- **Identify areas where additional utility cut-offs are needed to isolate utility systems.**
This activity addresses the risks associated with the damage to utility lines during an earthquake. By adding cut-offs, the public as well as any structures in the path of the damaged utility lines, will be better protected.
- **Develop backup plans in case of communication failures.**
This activity addresses the potential communication failures that can accompany an earthquake. By having a backup plan, it ensures that responding to emergencies arising from the earthquake event will not be interrupted.

4.8 Droughts and Wildfires

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance (i.e., crop damage, water supply shortage, etc.). The severity of the drought depends upon the degree of moisture deficiency, and the duration and size of the affected area. The following information on droughts in Lawrence County was obtained from the National Climatic Database Center.

The following table lists the drought events for Lawrence County going back to 1999. More detailed information for the highlighted events is listed beneath the table.

Source: NCDC WEBSITE

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Gallia, Jackson, Lawrence, Meigs, Vinton	05/01/1999	12:00 AM	Drought	N/A	0	0	0	0
2 Athens, Gallia, Jackson, Lawrence, Meigs, Vinton, Washington	06/01/1999	12:00 AM	Drought	N/A	0	0	0	0
3 Athens, Gallia, Jackson, Lawrence, Meigs, Morgan, Perry, Washington	07/01/1999	12:00 AM	Drought	N/A	0	0	0	0
4 Athens, Gallia, Jackson, Lawrence, Meigs, Morgan, Perry, Vinton, Washington	08/01/1999	12:00 AM	Drought	N/A	0	0	0	0
5 Athens, Gallia, Jackson, Lawrence, Meigs, Morgan, Perry Vinton, Washington	09/01/1999	12:00 AM	Drought	N/A	0	0	0	0
6 Athens, Gallia, Jackson, Lawrence, Meigs, Morgan, Perry, Vinton, Washington	10/01/1999	12:00 AM	Drought	N/A	0	0	0	0
7 Athens, Gallia, Jackson, Lawrence, Meigs, Morgan, Perry, Vinton, Washington	09/01/2002	12:00 AM	Drought	N/A	0	0	0	0
TOTALS:					0	0	0	0

Key: Mag: Magnitude Dth: Deaths Inj: Injuries PrD: Property Damage CrD: Crop Damage

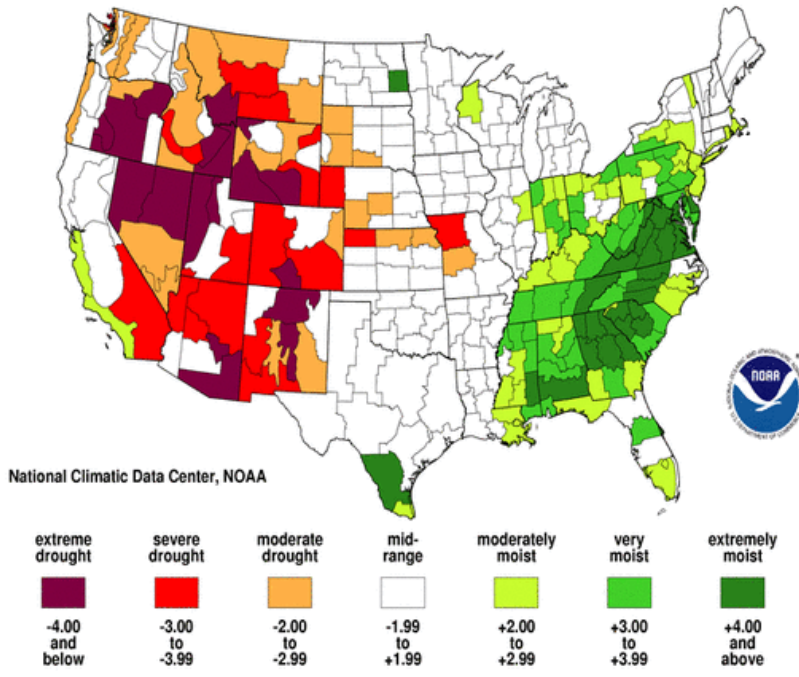
June 06, 1999 - Drought - \$0.0. The drought continued to spread and strengthen in southeast Ohio. A deterioration in stream flow and soil moisture was noted. Some showers at the end of the month temporarily helped the top soil and the crops. Only 1 to 2 inches of rain fell in most areas during the entire month of June. Nelsonville observed the minimum, with just a half-inch of rain. Temperatures peaked in the mid and upper 90s during the second week of the month. Beverly registered 98 degrees, while South Point had 97 degrees on the 10th.

July 01, 1999 - Drought - \$0.0. Dry conditions that began in the early spring and early summer continued into July.

Excessive heat contributed to substantial crop loss across much of the Buckeye State. Rainfall was widely scattered and did little to help farmers. Crop damage amounts were not available at the time of the writing of this report.

**Palmer Drought Index
Long-Term (Meteorological) Conditions**

July 2003



Droughts Precursor to Other Disasters

Lawrence County is highly susceptible to wild land fires due to the high percentage of land covered with forests. Droughts can serve as precursors to wildfire events due to the severe drying of underbrush, which greatly increases the potential for the occurrence of fire.

Wildfires

Each year an average of 1,000 wildfires burn 4,000 to 6,000 acres of forest and grassland within Ohio's Forest Fire Protection District, which corresponds mostly to the State's unglaciated till country. (See the map on the following page.) In a typical year, it is estimated that more than 15,000 wildfire and natural fuel fire occurrences are encountered statewide. From January 1, 1993 to August 20th, 2002 there were 2,246 reported fires in Lawrence County, resulting in the burning of 24,490 acres of land.

Ohio's Forest Fire Protection District, which corresponds mostly to the State's unglaciated till.



Ohio's Fire Protection Area

Source: www.dnr.state.oh.us/forestry/Fire/protectionarea.htm

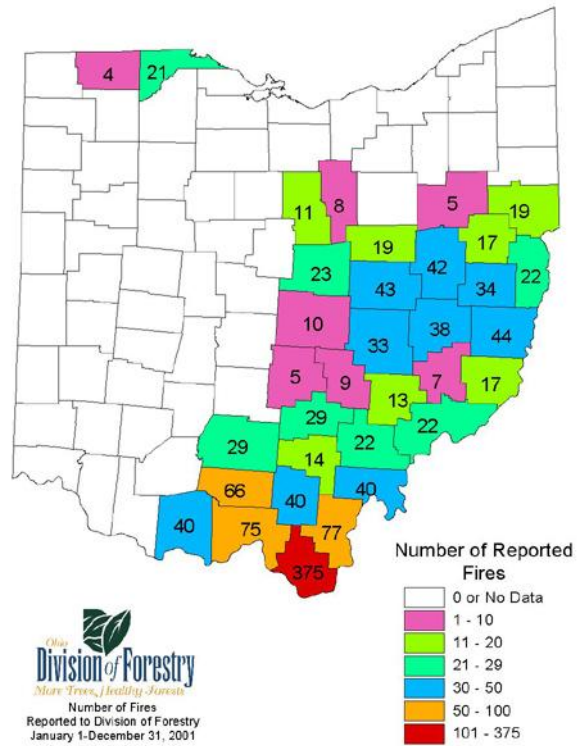
A significant portion of Wayne National Forest is located in Lawrence County. The Ironton District of the Wayne National Forest is depicted here.



Wayne National Forest in Lawrence County

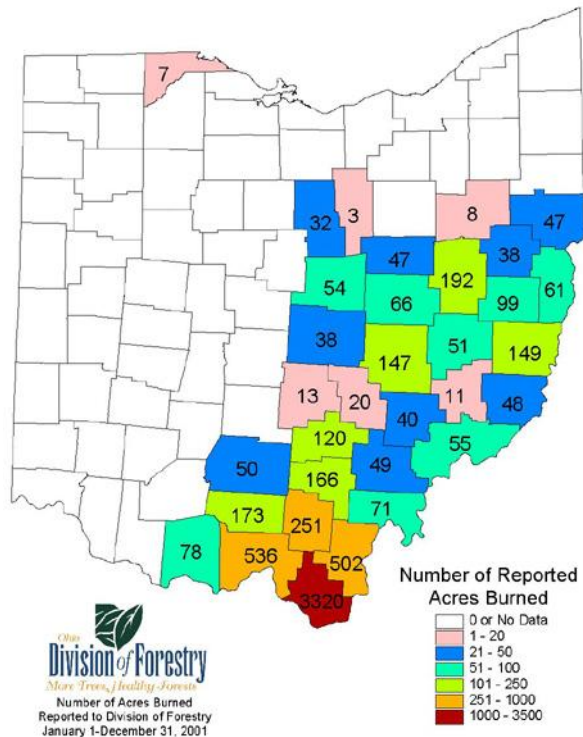
Source: <http://www.fs.fed.us/r9/wayne/maps/ironton.html>

Due to the higher percentage of forestland, Lawrence County has a far greater number of forest fires than do other surrounding counties.



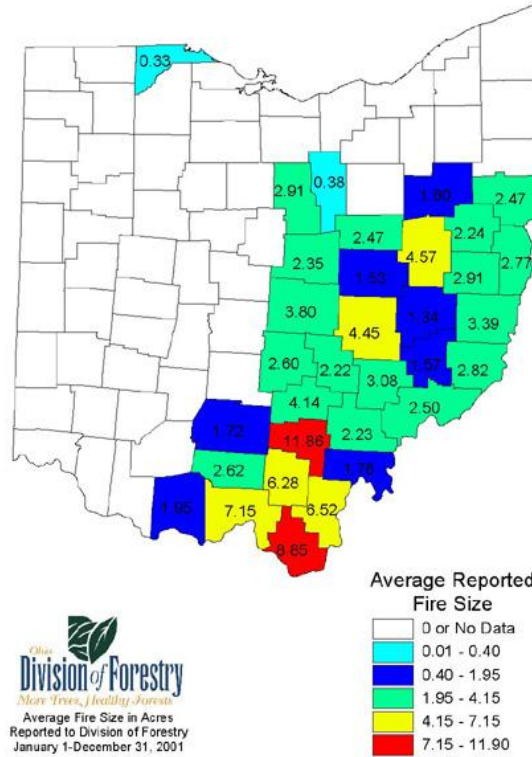
Number of Fires Reported to the Division of Forestry January 1, 2001 – December 31, 2001.

Due to the higher percentage of forestland, Lawrence County has a far greater number of acres burned in forest fires than do other surrounding counties.



Number of Acres Burned Reported to the Division of Forestry January 1, 2001 – December 31, 2001.

The average forest fire size is also greatest in Lawrence County as illustrated.



**Average Fire Size in Acres Reported to the Division of Forestry
January 1, 2001 – December 31, 2001.**

During 2001, there were 86 forest fires in Wayne National Forest (this includes all districts, not just the Ironton District alone.) The breakdown of those fires is listed below.

Cause of Fire	# of Fires in 2001
Arson	69
Equipment Use	1
Debris Burning	12
House Fires*	3
Car Fires*	1
Total	86

*House and car fires led to adjacent forest fires
 Source: www.fs.fed.us/r9/wayne/facts/fire_season.html

The following table lists the yearly fire occurrence from 1970 through 2002 for the Ironton District of the Wayne National Forest:

Year	Number of Fires	Total Acres Burned
1970	43	95.1
1971	46	88.4
1972	29	75.6
1973	12	23.5

Year	Number of Fires	Total Acres Burned
1974	26	33.7
1975	50	93.9
1976	124	219.9
1977	84	129.9
1978	36	41.3
1979	78	188.4
1980	69	158.8
1981	190	364.9
1982	96	170.2
1983	66	167.4
1984	81	191.7
1985	40	72.8
1986	90	916.9
1987	88	1223.4
1988	32	314.9
1989	24	115
1990	21	133.3
1991	30	483.4
1992	21	101.7
1993	13	39.3
1994	24	123.4
1995	31	262.7
1996	9	70.3
1997	21	41.4
1998	27	203.4
1999	39	703.1
2000	27	363.1
2001	80	865.1
2002	31	82.3
Total	1678	8158.2

*Note: >95% of fires were human caused.

Source: Wayne National Forest – Nelsonville Office, Assistant Fire Management Officer, John Crockett

Although forest fires can occur anytime throughout the year, there are two primary fire seasons in Wayne National Forest:

- 1) Early Spring – Before the leaves come out on the trees and as the weather warms up in late February and early March, humidity is normally very low. Without the benefit of shade from forest trees, the leaf litter becomes dry and warm. High, blustery winds are also frequently a part of early spring weather.
- 2) Fall – once the leaves start to fall, the humidity often drops and autumn winds soon dry out the fallen leaves, resulting in conditions ripe for a fire.

According to the Ohio Division of Forestry, Lawrence County has the greatest annual wild land fire occurrence in the State due to a significant arson problem. Annually, over 50% of the wild land fires that occur in this County are arson-related. The majority of the fires in the County occur in the Rome and Windsor Volunteer Fire Department protection areas. (*Conversation with Mike Bowden, Fire Supervisor, Ohio Division of Forestry on 7/23/03.*)

The following is a table depicting Lawrence County fire data from 1993-2003. This data does not include fires occurring within the Wayne National Forest fire protection area.

Year	Number of Fires	Number of Acres Burned	Estimated Value of Damages
1993	70	717	\$12,549
1994	193	1565	\$45,527
1995	162	1583	\$53,840
1996	90	477	\$5,313
1997	120	1088	\$3,740
1998	173	1128	\$9,504
1999	269	1644	\$11,930
2000	166	1042	No data
2001	375	3320	No data
2002	141	1090	No data
2003 (as of July 23)	73	779	No data
Total	1832	14443	\$142,403

Source: Ohio Division of Forestry

Lawrence County Drought Mitigation Efforts

According to the Ohio Emergency Management Agency (OEMA), there are currently no mitigation efforts underway, nor have there been any in the recent past.

In 1999, Lawrence County created a Drought Action Plan to guide their efforts. This plan can be found in **Appendix 14**.

Current Development Trends

Lawrence County is primarily rural in nature. Current development within Lawrence County has been primarily concentrated in the southeastern part of the County. This development is predominantly residential and is centered in Union and Rome Townships. Due to the increase in population that will occur in these two townships, there are potentially greater impacts on these areas if a drought were to occur due to greater stress put on existing water systems. The Drought Action Plan should be utilized in the event of a drought. The residents of the more rural areas of the County are also at a greater risk for potential damage due to their reliance on wells for the drinking water supply.

Hazard Assessment and Vulnerability Analyses

Droughts

Unlike most hazards, the threat of a drought tends to be dismissed because of the relatively long time a drought takes to have damaging effects. Due to the non-site specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. The table page 47 lists the drought events from 1999 to 2002. There were 7 drought events during that time period, 6 of them occurring in 1999.

Damage from droughts is very sporadic and not very well documented. The primary problem associated with droughts is the loss of drinking water. Many residents of the more rural portions of the county have on-site wells. In severe droughts, these wells may go dry, resulting in the necessity of hauling water for residential use and for farm animals.

Wildfires

Perhaps the best approach for preparing for future events is to consider historical occurrences. Looking at the table of fire data from 1993-2003 on page 53, the number of fires and acres burned, and the estimated value of damages varies greatly from year to year. Averages can be useful in preparing for future events. The average number of fires from 1993-2003 was 167, the average number of acres burned was 1,312 and the average estimated damages were \$20,343. Due to the large portion of Wayne National Forest located in Lawrence County and the high arson occurrence, the potential for future wildfires is significant.

Potential Dollars Lost

Droughts

The following information on dollars lost associated with the 1999 Drought was provided by the Lawrence County Floodplain Management Program. The local Soil and Water Office paid out \$171,010 for hay losses and \$58,027 for water. The Federal Conservation District for Emergency Conservation paid out \$104,799 for water and water lines. The total of these dollar losses is \$333,836. This figure can be used to estimate the potential dollars lost that could be associated with future drought events.

Wildfires

According to the information received from the Ohio Division of Forestry, the total estimated value of losses due to wildfires from 1993-2003 is \$142,403. An average value of estimated damages was calculated for the years with damage estimate figures listed. The average value was \$20,343. Future losses could be predicted based on this average of past occurrences.

Matrix Results

The matrix results on the following page show the averaged results for the Core Group members for this hazard. The three highest rated activities are highlighted and listed below:

- ***Identify areas where fire-fighting equipment is needed.***
This activity addresses the fact that there is inadequate fire response equipment in the County. By identifying the areas that are underserved with equipment, response capabilities can be increased and future damages can be decreased.
- ***Develop/improve cooperative response agreements.***
This activity ensures that there is more than one fire department equipped to fight wildfires. One local fire department may not be equipped to fight the fire alone, without assistance.

- **Strengthen existing penalties for arsonists.**

This activity addresses the fact that existing penalties for arsonists are small and may not be functioning effectively as a deterrent.

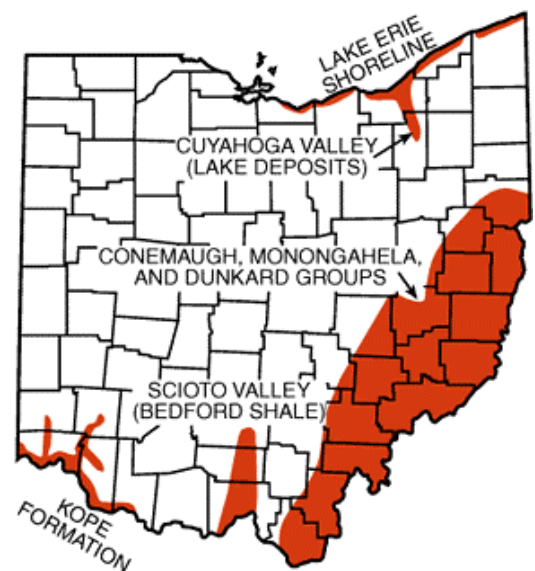
Lawrence County All Natural Hazard Mitigation Plan	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Reduce Risk	Socially Acceptable	Total
Drought/Wildfire								
No Action.								0
There is inadequate fire response equipment. Identify areas where fire fighting equipment is needed.	3.4	3.8	4.0	4.1	4.0	3.9	4.0	27.2
A local fire department may not be able to handle the fire alone. Develop/improve cooperative response agreements.	3.8	3.8	3.8	3.8	3.8	4.1	3.9	27.1
The penalties for arson are small. Strengthen existing penalties for arsonists.	3.4	3.2	4.0	3.9	4.1	4.4	4.0	27.0
The county does not have adequate funding for additional fire protection and response equipment. Seek funding for equipment.	3.4	3.8	4.0	4.0	3.9	4.0	3.8	26.9
The public is not aware of times of year when there is an increased fire risk. And how to lessen damages around their homes. Educate public about fire risks and damage prevention.	3.7	3.7	3.8	3.8	3.9	3.9	3.6	26.6
Arson fires are numerous and there is lax enforcement and prosecution. Increase enforcement and prosecution of arsonists.	3.5	3.5	3.8	3.8	4.0	3.9	3.8	26.3
The Feb. 2003 ice storm produced a large amount of woody debris, which greatly increases the fire risks. Identify areas with large amounts of wood debris from Feb. 2003 ice storm.	3.1	3.8	3.6	3.5	4.1	3.7	3.5	25.3
The county does not have adequate funding to remove the woody debris from the Feb. 2003 ice storm. Seek funding for removal of wood debris.	2.6	3.4	3.8	3.7	3.9	3.7	3.6	24.7
There is no way for the public to report suspected arsonists. Develop public hotline to report arsonists.	2.7	3.5	3.6	3.6	3.7	3.5	3.7	24.4
Additional fire break lines are needed. Identify areas where fire break lines are needed.	2.7	3.3	3.6	3.6	3.8	3.8	3.6	24.3
Fire break lines are not maintained. Encourage maintenance of fire break lines.	2.8	3.1	3.5	3.2	3.5	3.5	3.2	22.8
A zoning overlay would identify areas of wildfire interface. These areas could then be permitted and regulated. Investigate developing zoning regulations in jurisdictions without zoning.	2.7	3.0	3.4	2.9	3.5	3.5	2.8	21.7

4.9 Landslides and Subsidence History in Lawrence County

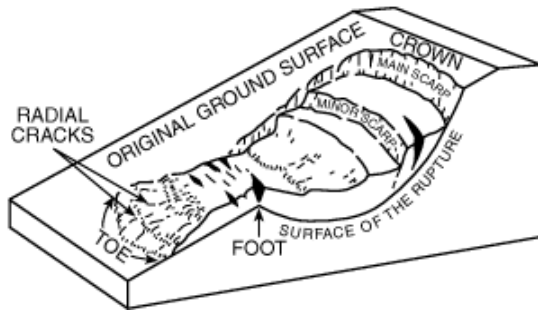
Landslides

A landslide can be a wide range of ground or soil movements (creeps, rock falls, deep failure of slopes, slumps and shallow debris flows) that can happen in an instant or over several weeks, months, or even years. Landslides occur all over the United States and present a significant problem in several Ohio regions. A map of landslide prone areas in Ohio can be seen to the right.

The most common types of landslide events in Lawrence County are rotational slumps, earth flows, and rock falls. Rotational slumps are the largest movements of earth in Ohio. They are characterized by a large mass of weakened rock or sediment moving along a curved slip plane. An example of a typical slump is depicted on the following page.



Landslide Prone Areas in Ohio



Rotational Slump

An earth flow involves a smaller mass, and is more common. Earth flows entail jumbled masses of rock or sediment, usually unconsolidated glacial sediment, moving down a slope, forming odd topographical features. Rock falls are described as blocks of bedrock becoming detached and tumbling down cliffs or steep slopes.

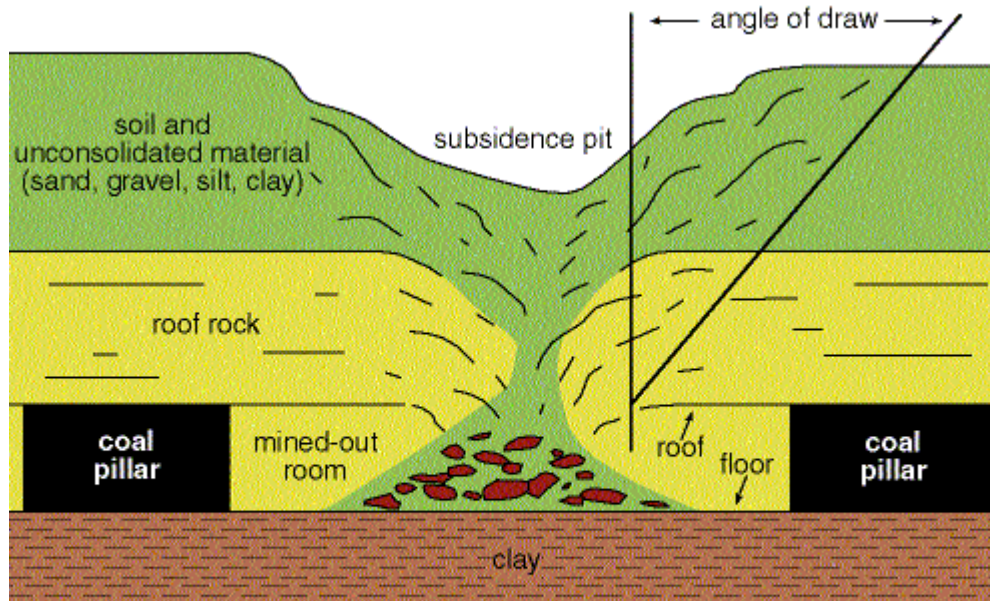
There are several indicators for landslide prone areas including tilted or bending trees, displaced fences, poles, or walls, a concentration of stones at the toe of a slope, irregularly shaped mounds or

ridges, step-like ground and water seeps. There are two elements that come together to cause a landslide – the existing geologic conditions, combined with a trigger set the landslide in motion.

Subsidence

Subsidence, in the context of underground mining, is the lowering of the Earth's surface due to collapse of bedrock and unconsolidated materials (sand, gravel, silt, and clay) into underground mined areas. There are two types of subsidence: 1) pit, also called sinkhole or pothole; and 2) sag or trough. (The term "sinkhole" more properly refers to solution collapse features in limestone.)

Pit subsidence is characterized by an abrupt sinking of the surface, resulting in a circular steep-sided, craterlike feature that has an inward drainage pattern. It is associated with roof collapse of mines that have total overburden (overlying unconsolidated material and rock) of less than 165 feet, weak roof rock of shale or mudstone, and a ratio of unconsolidated-material thickness to rock thickness of less than 1.2. Pit subsidence does not occur where the thickness of the unconsolidated overburden is more than 90 feet.



Diagrammatic cross section of typical subsidence resulting from mine-roof collapse. No scale implied.

Sag subsidence is a gentle, gradual settling of the surface. It is associated with pillar crushing or pillar punching (discussed below) of deeper mines (overburden of more than 75 feet). Sag-subsidence features may fill with water if the surface of the subsidence intersects the water table. Pit subsidence features generally do not hold water because the pit drains into the underlying mine.

Mine subsidence is controlled by many factors, including height of mined-out area, width of unsupported mine roof, thickness of overburden, competency (strength) of bedrock, pillar dimensions, hydrology, fractures/joints, and time. The vertical component of subsidence is proportional to the height of the extraction area. Generally, the vertical component of subsidence does not exceed the height of the mine void. However, piping (subsurface erosion by water washing away fine-grained soil) of unconsolidated material can create a cavity deeper than the height of the mined area.

The area of mine subsidence increases proportionally with increasing width of unsupported roof rock. The potential area of subsidence is equal to the extraction area plus an area surrounding the extraction area measured by an angle up to 35°, called the angle of draw, from the vertical at the edge of the extraction area. For example, roof collapse in a mine 160 feet deep could cause subsidence more than 75 feet beyond the edge of the mine. The deeper the mine, the larger the area potentially affected by mine subsidence at the surface.

The vertical component of subsidence decreases with increasing depth or thickness of overburden, especially bedrock. As the roof rock sags, ruptures, and eventually collapses into a mined-out area, the roof rock rotates, twists, splinters, or crumbles as it falls, resulting in incomplete compaction. In other words, the mine void is not completely filled during a mine-roof collapse. Because bedrock collapses with incomplete compaction, the deeper the extraction area, the smaller the vertical component is at the surface.

Mine subsidence is related to the strength or competency of bedrock, which is a measure of a rock's load-bearing capacity. Sandstones and limestones are capable of withstanding greater loads than are shales and mudstones. Therefore, sandstones and limestones can span larger unsupported distances or support thicker amounts of overburden before failing.

Mine subsidence increases as the size of the supporting pillars decreases. In room-and-pillar mining, the most common style of underground mining in Ohio, about 50 percent of the seam is left in place as pillars for roof support. However, coal operators in the nineteenth and early twentieth centuries commonly mined the pillars, partially or wholly, as an area of the mine was abandoned. Complete mining of a pillar is called pillar robbing. Reducing the size of a pillar is called pillar slicing. Creating small, multiple pillars out of a single, large pillar is called pillar splicing. Mining the pillar increases the width of unsupported roof, which increases the likelihood of subsidence. Also, diminishing the size of a pillar increases the chance of pillar crushing or pillar punching and increases the chance of mine-roof collapse. Pillar crushing results when the weight of the overburden exceeds the load-bearing capacity of the pillar and it is crushed. Pillar punching results when the weight of the overburden exceeds the load-bearing capacity of the floor rock, and the pillar is pushed downward into the floor. In pillar punching, the floor rock is generally a soft, plastic clay that flows upward into the mine void, a phenomenon miners term a "squeeze."

Mine subsidence is affected by water circulation or the fluctuation of water level in a mine. Some underground mines remain dry after abandonment; many others fill with water. Circulating water in an underground mine can deteriorate roof support or the roof rock.

Because of its incompressibility, water provides support to the roof of a mine that is filled with water. However, the likelihood of roof collapse may be enhanced or accelerated in mines where the roof rock is repeatedly saturated then left unsupported by fluctuating water levels (either by seasonal weather conditions or intentional pumping) and where the pillars of coal are eroded by flowing water.

The likelihood of subsidence increases where fractures (joints) intersect the mine roof. Fractures or joints are natural planes of weakness where collapse of the mine roof is likely to occur. Fractures also may allow the subsidence to extend beyond the limit of the mined area.

The length of time for mine subsidence to occur increases with increasing depth of mining and increasing competency of overburden. The type and amount of roof support in addition to pillars of coal left in the mine also affect subsidence. Most early underground mines in Ohio used wooden timbers as additional roof support. Steel I-beams were used in Ohio mines as roof support beginning in the early twentieth century. By the mid-twentieth century, roof bolting was another type of roof support being used in Ohio mines. With time following abandonment of an underground mine, these types of roof support eventually rot or deteriorate, allowing subsidence to occur. Because of the complexity of the variables which contribute to mine-related subsidence, no acceptable system exists which is capable of accurately predicting the time or amount of subsidence in a variety of geological settings, especially for mines that have an irregular pattern of room-and-pillar mining.

In addition to subsidence above a mine, the collapse of improperly stabilized mine openings presents a great risk to public property and safety. The collapse of an improperly sealed shaft may equal the original depth of the shaft. In 1977, an improperly stabilized shaft to a coal mine abandoned in 1884 collapsed underneath a garage in a residential neighborhood in Youngstown, leaving a 115-foot-deep opening. This shaft was originally 230 feet deep. Fortunately, there was no loss of life or personal injury associated with this collapse, but this shaft collapse illustrates the potential for life-threatening situations due to collapse of mine openings.

Geologic Conditions of Lawrence County

Steep slopes and local relief of several hundred feet characterize portions of eastern and southern Ohio. In addition, bedrock of Mississippian, Pennsylvanian, and Permian ages, thick colluvium (deposits of broken and weathered bedrock fragments), and thick lake silts and outwash formed in association with Pleistocene glaciers make this area particularly prone to slope failures. The most slide-prone rocks in eastern Ohio are red mudstones ("red beds") of Pennsylvanian and Permian age. These rocks tend to lose strength when they become wet, forming rotational slumps or earthflows. About 85% of slope failures in this region are in red beds of the Pennsylvanian-age Conemaugh and Monongahela Groups. (See the figure on page 55.)

Lawrence County is comprised of two plateaus, the Ironton Plateau and the Marietta Plateau. The Ironton Plateau can be characterized by moderately high relief (300 feet) and coarser grained coal-bearing rock. The Marietta Plateau can be characterized by high relief, generally 350-600 feet near the Ohio River and mostly fine-grained rocks, red shales and red soils. Landslides are common for this plateau.

Landslides are a significant problem in several areas of Ohio. The Cincinnati area has one of the highest per-capita costs due to landslide damage of any city in the United States. Many

landslides in Ohio damage or destroy homes, businesses and highways, resulting in annual costs of millions of dollars. Upon occasion, they can be a serious threat to personal safety. On Christmas Eve of 1986, an individual traveling in an automobile was killed by falling rock along U.S. Route 52 in Lawrence County. Although this is Ohio's only recorded landslide fatality, there have been numerous near misses.

Triggers and Catalysts of Landslide Events

There are several sets of circumstances or individual events that can lead to a landslide, most of which are directly caused by alterations made to the terrain by humans. One trigger that can cause a landslide is an activity vibration. A vibration can be anything from human induced blasting, to construction, or even heavy traffic. Slope modification is another reason landslides occur. Over-steepening a slope, adding weight to the top of a slope, removing part of the toe of a slope and constructing an embankment or fill on a slope are all possible causes for landslides.

Vegetation that exists on slopes is important in adding stability to loose soil and rocks and absorbing excess water on the slope. If removed, the slope may weaken and fail, resulting in a landslide.

Naturally recurring phenomenon might cause landslides. Vibrations resulting from earthquakes can cause landslides, although no landslide instances involving earthquakes has ever been documented in Ohio, but the possibility remains. Large amounts of water or snowmelt can saturate the slope to the point of failure. The saturated slope could develop into a debris flow or a mudflow. Uncontrolled runoff can lead to erosion, which can add to slope instability. Though some of these catalysts cannot be foreseen, many landslides can be prevented.



Landslides Triggered by Erosion

****Pictures are taken from Hamilton County Department of Public Works website.***

Preventive Measures and Precautions

Many landslide hazards can be preempted by good geologic investigations and engineering practices, and effective enforcement of land-use management regulations. Avoiding the triggers

of landslides and being aware of landslide indicators are the simplest ways to avert landslide hazards. Preventing unnecessary alterations of the slope, steering clear of vibrations and leaving vegetation on slopes are all practical and common sense ways to avert landslides. Regulating building in questionable areas is another practical way to avoid a landslide catastrophe.

Measures that are more assertive can also be considered. Excavating some of the upper slope or placing fill on the toe of the slope may indeed prevent a landslide. Improving drainage on a slope can remove stress caused by excess moisture, thereby reducing the potential for landslides. Restraining the slope by the use of cribbing, piling or retaining walls may also prevent landslides or minimize damage if one does occur. These mitigation measures should be weighed with geologic, hydraulic and economic attributes before choosing the most suitable avenue of prevention.

Landslide Occurrence Table

Numerous efforts were made to obtain information on documented landslide/subsidence occurrences in Lawrence County. There are no written records available at the County. The County Engineer was contacted and reported that there is no written documentation of landslide events. The Lawrence County EMA as well as the State Highway Patrol were contacted regarding landslide information but no information was on file. The information on landslide/subsidence occurrences listed below was obtained from the Ohio Department of Natural Resources.

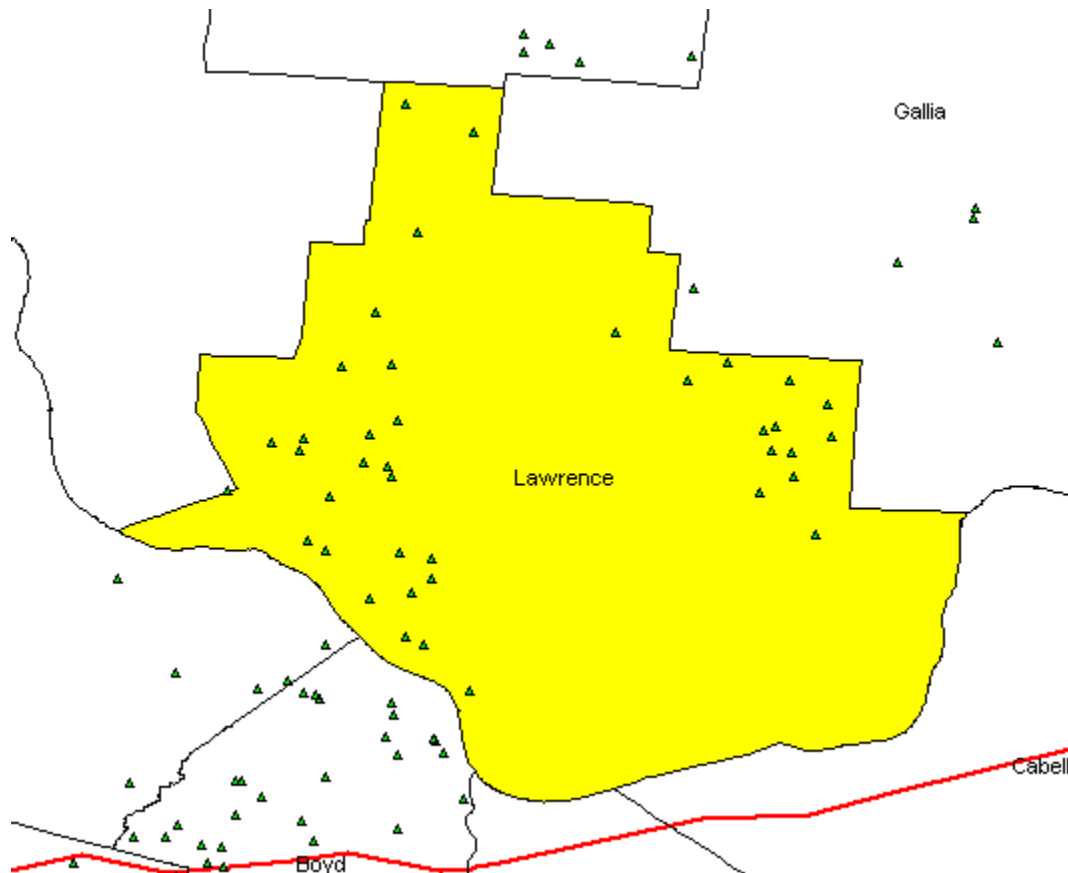
Complaint Type	Date Received	Address	City	Status
Earthslip/Landslide	3/17/1998	933 County Rd. 21	Ironton 45638	Under Investigation
Earthslip/Landslide	5/6/1998	3001 South 6 th Street	Ironton 45638	Under Investigation
Subsidence	7/9/1998	57 Private Road, 755 County Road	South Point 45680	Under Investigation
Earthslip/Landslide	5/13/1998	17797 State Route 93	Pedro 45659	Referred to Abandoned Mine Land Program
Subsidence	10/10/2002	118 Oakwood Drive	Coal Grove 45638	Under Investigation
Subsidence	7/27/1998	3218 State Route 141	Ironton 45638	Under Investigation
Earthslip/Landslide	2/2/1998	Ironton City Center, 301 South 3 rd	Ironton 45638	Non Mine Related
Earthslip/Landslide	2/18/1998	1011 Township Road 199	Pedro 45659	Non Mine Related
Earthslip/Landslide	1/26/1998	738 Township Road 266	Kitts Hill 45645	Non Mine Related
Earthslip/Landslide	2/19/1998	15245 State Route 93	Pedro 45641	Under Investigation

Source: Mineral Resources Management Database, ONDR (October 31, 2002)

There are many abandoned mines located in Lawrence County. The following information on abandoned mine locations was obtained from Kathy Rossman at the Ohio Department of Natural Resources. These are identified problem areas which were documented as such using USGS topographical maps depicting strip mined lands. Problems for these areas include things like dangerous slides, clogged streams, hazardous water bodies, surface burning and mine openings.

Problem Area Name	Planning Unit Name	Mine Type
Pleasant Valley Church	Lower Pine Creek	Surface
Pine Grove	Lower Pine Creek	Underground
Cannons Creek	Lower Pine Creek	Surface
Rappsburg	Middle Symmes Creek	Surface
Mason School	Sand Fork	Surface
Greasy Ridge Clog	Sand Fork	Surface
Sand Fork	Sand Fork	Surface
Slope Hollow	Lower Pine Creek	Surface
Ellisonville	Lower Pine Creek	Underground
Pedro	Lower Pine Creek	Surface
Pine Grove East	Lower Pine Creek	Surface
Osborne Run	Storms Creek	Surface
La Grange	Storms Creek	Surface
Watson Creek	Indian Guyan Creek	Surface
Sand Fork Clog	Sand Fork	Surface
Slope Hollow	Lower Pine Creek	Surface
Black Fork	Black Fork	Surface
Dillon	Indian Guyan Creek	Surface
Shebear Hollow	Indian Guyan Creek	Surface
Lower Pine Creek	Lower Pine Creek	Surface
Little Indian Guyan Creek	Indian Guyan Creek	Surface
Mason School	Sand Fork	Surface
Blackfork Firebrick	Upper Pine Creek	Surface
Sugar Creek Slide	Storms Creek	Underground
Crawford	Middle Symmes Creek	Surface
Renfro	Middle Symmes Creek	Surface
Coffee and Tea #1	Middle Symmes Creek	Surface
Myers	Sand Fork	Surface
Hog Run Slide 2	Ice Creek	Underground
Sugar Creek Slide	Storms Creek	Underground
Kimble Creek MB656	Upper Pine Creek	Both surface and underground
Albright Emergency	Upper Pine Creek	Underground
Hecla North	Storms Creek	Underground
Cecil Hollow	Storms Creek	Underground
Sheridan	Ice Creek	Underground
OH –Lawrence-FEA	Unknown	-
Coal Grove	Ice Creek	Underground
Center Station	Lower Pine Creek	Underground
Lemaster Subsidence	Ice Creek	Underground

This U.S. Office of Surface Mining figure illustrates the locations of these mines.



Source: The U.S. Office of Surface Mining, Abandoned Mine Land Inventory System

Infrastructure and Critical Facilities

Due to the unavailability of data on the landslide/subsidence events that have occurred in Lawrence County, the impacts on infrastructure and critical facilities cannot be assessed.

Lawrence County Landslide Mitigation Efforts

According to the Ohio Emergency Management Agency, there are currently no landslide mitigation efforts underway, nor have there been any in the recent past.

Current Development Trends

The majority of Lawrence County is considered a landslide-prone area as illustrated in the figure on page 55. The areas within the County that are experiencing a higher rate of development, namely Union and Rome Townships, will be more at risk for the occurrence of a landslide. As development modifies the slopes in these areas and as vegetation is removed, the threat of landslides or slumps increases.

Hazard Assessment and Vulnerability Analyses

Because of the steep slopes, soil types and the amount of rain that has been received in the County, the threat of landslides continues to increase. As vegetation is removed from steep

slopes or these slopes are modified by development, the threat of landslides or slumps increases proportionally. Continued denuding of these vulnerable areas will significantly increase the risk of landslides.

Potential Dollars Lost

Attempts were made to obtain more detailed information on the history of landslide occurrences within Lawrence County in order to better predict both future occurrences and dollars lost associated with those occurrences. However, no written documentation exists on these occurrences. No calculations have been considered at this time.

Matrix Results for Landslides

Lawrence County All Natural Hazard Mitigation Plan	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Reduce Risk	Socially Acceptable	Total
Landslide/Subsidence								
No Action.								0
The public is not aware of where the hazard areas are. Educate public of locations of hazard areas.	3.7	3.8	3.9	3.9	4.1	3.8	4.0	27.2
Landslides and subsidence can destroy utilities. Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones.	2.9	3.6	3.9	3.6	3.9	3.7	3.6	25.2
There is a lack of or conflicting information of where the high hazard areas are. Identify landslide, mined areas and problem soil areas.	2.9	3.6	3.6	3.5	3.9	3.7	3.4	24.6
Logging often increases the risk of landslides. Coordinate with the Soil Conservation Service to improve logging practices.	3.0	3.5	3.8	3.3	3.8	3.8	3.3	24.5
There is not enough equipment and funding to repair the landslide areas. Seek funding to obtain equipment and to repair problem areas.	3.1	3.3	3.5	3.4	3.7	3.4	3.4	23.8
Additional investigation and mapping is needed to determine where old mines are. Seek funding for mapping and subsurface investigations.	2.6	3.3	3.4	3.4	3.9	3.3	3.3	23.2
There are no additional building standards in these high-risk areas. Develop regulations for development in these areas.	2.9	3.1	3.5	3.0	4.0	3.7	2.8	23.0
A zoning overlay district would alert the public about potential risks and ensure that additional building precautions are taken. Investigate developing zoning regulations in jurisdictions without zoning.	2.7	3.0	3.4	2.8	3.5	3.2	2.6	21.1

The matrix results above show the averaged results for the Core Group members. The top two activities have been highlighted and are listed as follows:

- Educate the public on the locations of hazard areas.**
This activity addresses the fact that the public is unaware of where the landslide and subsidence hazard areas are located. By educating them on these locations, safety will be improved.
- Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones.**
Landslides and subsidence have the potential to destroy utilities. By identifying areas where additional cut-offs are needed, the safety of both residents and structures can be greatly increased.

4.10 Severe Storm History in Lawrence County

As can be seen in the chart below, severe storms affect Ohio with great frequency, but are also associated with other hazards such as tornadoes and severe flooding.

Ohio Disaster History

Year	Disaster Type	# Of Events
1989	Severe Storms & Flooding	831
1990	Severe Storms, Tornadoes & Flooding	870
1992	Severe Storms, Tornadoes & Flooding	951
1995	Severe Storms & Flooding	1065
1996	Severe Storms & Flooding	1097
1996	Flooding & Severe Storms	1122
1997	Severe Storms & Flooding	1164
1998	Severe Storms	1227

Lawrence County, like most counties in Ohio, is susceptible to severe weather. The severe weather category is a “catch all” to hazards that do not meet other specific criteria. The first specific criterion of severe weather, as it relates to thunderstorms, is a wind classification of 58 mph and above. Severe storms can produce damage, but also are often the precursor for much more severe weather to follow. Hazards that fit into the severe weather category include thunderstorms and hail storms. Lawrence County has chosen to assess winter storms as a separate hazard category, as documented in Section 4.5.

Thunderstorm History in Lawrence County

A severe thunderstorm **watch** is issued by the National Weather Service when the weather conditions are such that damaging winds of 58 mph or more, or hail three-fourths of an inch in diameter or greater, is likely to develop. Citizens should locate a safe place in the home and tell family members to watch the sky and listen to the radio or television for more information. A severe thunderstorm **warning** is issued when a severe thunderstorm has been sighted or indicated by weather radar. At this point, danger is immediate, citizens should move to a safe place, turn on a battery-operated radio or television, and wait for the "all clear" by the authorities.

Tornadoes and flash flooding are spawned by thunderstorms. When a "severe thunderstorm warning" is issued, review what actions to take under a "tornado warning" or a "flash flood warning." When thunderstorms produce heavy rains (which can cause flash flooding), strong winds, hail, lightning and tornadoes, people should get inside a sturdy building and stay tuned to a battery-operated radio for weather information.

Lightning is also a major threat during thunderstorms. In the United States, 75 to 100 Americans are struck and killed each year by lightning. The myth that lightning never strikes twice in the same place needs to be replaced by the fact that lightning can strike several times in the same place in the course of a single discharge.

March 18, 1994 - High Winds - \$500 Thousand. Winds gusted to 60 mph or higher for several hours after the passage of a cold front from west to east. Ohio University (Athens County) reported a peak wind of 62 mph at 2:34 pm. A number of downed trees, limbs and power outages were reported. Several mobile homes in transport were toppled, with two injuries reported during two separate accidents. The roof of a warehouse in Marietta (Washington County) was removed by the high winds.

June 6, 1996 - Thunderstorm winds - \$200 Thousand. Trees and several large limbs fell across roads and houses. Mobile homes and houses sustained damage, mainly to awnings and porches. Damage was generally between Fifth and Twelfth Streets on the south side of town. Two cars were damaged and one destroyed. The sides of a storage barn for the state were torn away.

June 16, 1998 - High Winds - \$250 Thousand. Hail the size of quarters to golf balls fell in town, denting vehicles.

Hail Storm History in Lawrence County

Hail storms have also been problematic for Lawrence County. From 1950 to February 2003, there were 29 hail events reported in the County, with damages totaling \$386,000. Several costly storms occurred in 1998, which was an especially hard-hit year. These events are listed as follows:

Date of Event	Location of Event	Damage (\$)	Additional Information
1/8/1998	Willow Wood		1.0 inch
1/8/1998	South Point	5,000	1.0 inch
5/24/1998	Ironton	50,000	1.0 inch
6/16/1998	Ironton	250,000	1.75 inches
6/16/1998	Ironton	25,000	0.88 inch
5/24/1998	Pedro	40,000	1.5 inches
6/16/1998	Waterloo		1.0 inch
7/2/1998	Waterloo		1.0 inch
7/2/1998	Arabia	10,000	1.75 inches

Lawrence Severe Weather Mitigation Efforts

According to the Ohio Emergency Management Agency (OEMA), there are currently no mitigation efforts underway, nor have there been any in the recent past.

Current Development Trends

Due to the non-site specific nature of this hazard, current development trends have no effect other than the knowledge that in regard to mitigation for severe storms, anything considered should be conducted Countywide. Areas that are developing at a faster rate, namely Union and Rome Townships, should put greater consideration into the placement of utility lines and the maintenance of trees within the utility easements so as to minimize the occurrences of power outages in these more populated areas.

Hazard Assessment and Vulnerability Analyses

Because severe storms are random in nature, the Core Group has chosen to look at historic events to determine Lawrence County's susceptibility. According to the National Climatic Data Center (NDCD), there have been 60 thunderstorm and high wind events recorded in Lawrence County from 1950 to 2003, with damages totaling approximately \$1.5 million. Because the severe storm category also includes hailstorms, these must also be assessed in terms of historical occurrence. There were 29 hailstorms recorded for Lawrence County from 1950 to 2003, totaling \$386,000 in damages.

Potential Dollars Lost

Due to the non-site specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. This information was referenced above and was obtained from the National Climatic Data Center (NCDC) website and is show in detail in **Appendix 15 - Severe Weather History** and **Appendix 16 - Hail Storm History**.

When considering potential dollars lost for future events, an average can be taken of past events to give some indication of what future costs might be. For severe storms, the average cost for a storm event (thunderstorms and thunderstorm winds) from 1968 to 2003 was \$45,633. The average cost of damages incurred from a hail storm event from 1975 to 2003 was \$48,250.

Matrix Results for Severe Storms

Lawrence County All Natural Hazard Mitigation Plan	Evaluation Criteria							Total
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	
Severe Storms								
No Action								0
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	3.7	4.1	4.0	4.0	4.2	4.2	4.2	28.4
People are not always around media to alert them to severe weather. Develop an audible alert system.	3.8	3.7	4.2	3.8	4.1	4.2	3.9	27.7
Communication systems often fail during severe storms. Develop back-up plans in case of communication failures.	3.6	4.0	4.0	4.0	3.9	3.6	3.9	27.1
The public is not aware of the risks from severe storms. Educate public about severe weather risks and damage prevention.	3.5	3.8	3.6	3.8	3.8	3.9	3.9	26.4
Inadequately constructed roofs and buildings can be damaged during severe storms. Investigate developing building codes and inspection system in jurisdictions without building codes.	3.0	3.7	3.8	3.4	4.2	4.2	2.9	25.2
There is inadequate warning about impending storms. Seek funding for weather radios.	2.8	3.4	3.3	3.6	3.3	3.1	3.4	22.7

The matrix results above show the average of the Core Group members for this hazard. The top three activities have been highlighted and are listed below:

- **Encourage maintenance of trees in right-of-way areas.**
This activity addresses the fact that trees are often destroyed in high winds, taking down power and communication lines. By keeping up with maintenance of trees in the right-of-way areas, damages can be reduced.

- ***Develop and audible alert system.***
This activity addresses the fact that many residents are not able to receive warnings through the media because they are not around TVs and radios. An audible alert system would ensure that all residents receive warning of impending severe storm events.
- ***Develop backup plans in case of communication failures.***
Severe storms have the potential to disrupt communication through power outages, etc. By developing a backup plan for communication systems, emergency responses to the event will not be disrupted

4.11 Other Hazards – Dam Failures

A dam failure is defined as a gradual or immediate collapse or failure of water impounding systems or structures, resulting in downstream damages.

According to the Ohio Administrative Code, dams are classified into four classes: Class I, II, III, and IV. The following parameters are the criteria for the classification.

- 1) Height of dam – defined as the vertical dimension as measured from the natural streambed at the downstream toe of a dam to the low point along the top of the dam.
- 2) Storage volume – defined as the total volume impounded when the pool level is at the top of the dam immediately before it is overtopped.
- 3) Potential downstream hazard – defined as the resultant downstream damage should the dam fail, including probable future development.

Classes are defined as the following:

Class I

- *Height of dam:* Greater than 60 feet
- *Storage volume:* Greater than 5000 acre-feet
- *Potential downstream hazard:* Probable loss of life, serious hazard to health, structural damage to high value property (i.e., homes, industries, major public utilities.)

Class II

- *Height of dam:* Greater than 40 feet
- *Storage volume:* Greater than 500 acre-feet
- *Potential downstream hazard:* Possible health hazard including loss of a public water supply or wastewater treatment facility; flood water damage to homes, businesses, industrial structures (no loss of life envisioned), damage to state and interstate highways, railroads, roads that provide the only access to residential or critical areas such as hospitals and nursing homes.

Class III

- *Height of dam:* Greater than 25 feet
- *Storage volume:* Greater than 50 acre-feet
- *Potential downstream hazard:* Damage to low value non-residential structures, local roads, agricultural crops and livestock.

Class IV

- *Height of dam:* Less than or equal to 25 feet
- *Storage volume:* Less than or equal to 50 acre-feet
- *Potential downstream hazard:* Losses restricted mainly to the dam.

The following is a table of information on Class I, II and III dams in Lawrence County. Lawrence County has 7 Class I dams, 6 Class II dams and 2 Class III dams.

Name	Class	Township	Stream	Year Completed	Ownership
Bear Run Lake Dam	I	Decatur	Bear Run		Federal
Dalton Lake Dam	I	Elizabeth	Tributary to Little Pine Creek	1890	Private
Payne Lake Dam	I	Symmes	Tributary to Symmes Creek	1961	Private
Timbre Ridge Lake Dam	I	Mason	Tributary to Sand Fork Creek	1979	Federal
Izaak Walton Lake Dam	I	Aid	Tributary to Johns Creek		Private
McClure Lake Dam	I	Aid	Tributary to Aaron Creek	1966	Private
LAWCO Lake Dam	I	Elizabeth	Darby Creek	1931	Association
Staley Lake Dam	II	Lawrence	Tributary to Ice Creek	1978	Private
Lake Vesuvius Dam	II	Elizabeth	Storms Creek	1940	Federal
Pine Creek Structure No. 8 Dam	II	Elizabeth	Tributary to Sperry Fork	1972	Public
Randolph Lake Dam	II	Fayette	Willow Creek		Private
Lake Forest Dam	II	Windsor	Tributary to Symmes Creek	1958	Association
Brammer Pond Dam	II	Perry	Little Ice Creek	1955	Private
Steed Lake Dam	III	Lawrence	Tributary to Turkey Fork	1970	Private
Smith Hollow Dam	III	Elizabeth	Tributary to Ellisonville Creek		Federal

Source: ODNR – Division of Water database

Crown City Mining Pond No. 024 Dam and the Polecat Lake Dam are now abandoned.

The Ohio Administrative Code specifies that periodic inspections and evaluations of all Class I, Class II, and Class III dams to assure that their continued operation and use does not constitute a hazard to life, health, or property. Emergency action plans are also required for all Class I, II and III dams. The emergency action plan for all Class I structures shall include but not be limited to an inundation map of the critical routing reach. According to the Ohio Department of Natural Resources and the U.S. Army Corps of Engineers, none of the Class I, II or III dams in Lawrence County have emergency action plans. Since the emergency action plans for the Class I, II or III dams in the County have not been completed, there are no accompanying inundation maps. The development of such maps is not the County's responsibility; however, the County may try to encourage the development of the inundation maps with the appropriate responsible agencies.

Hazard Assessment / Vulnerability Assessment

Due to the lack of emergency action plans with inundation maps of the affected areas and structure inventories, an accurate assessment of vulnerability is not possible at this time. Also, no potential loss calculations have been considered at this time.

During the Flood of 1997, the Timbre Ridge Dam, a Class I dam, was a safety concern. There was a dam failure at Cecil Hollow and approximately 10 homes were impacted. The Cecil Hollow Dam was overtopped (flow over the top of the dam embankment crest) and branched (formation of an opening in the dam embankment from the crest to the downstream toe of the dam.) Kerns Hollow Impoundment also experienced overtopping as well as downstream slope erosion.

According to ODNR Division of Water database files, there was a dam breach at LAWCO Lake Dam (Class III) in 1977 and a spillway failure at Smith Hollow Lake Dam (Class II) prior to April of 1989.

Matrix Results

Lawrence County All Natural Hazard Mitigation Plan		Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Dams									
No Action.									0
There is a lack of maintenance of the dams. Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.	3.4	3.9	3.8	3.6	4.0	3.8	3.4		25.9
There are dams that have been constructed without review or state oversight. Identify dams throughout county to determine if they fall under state regulation.	3.2	3.8	3.7	3.6	4.1	3.8	3.4		25.6

The matrix results above show the averaged results from all of the Core Group members of this hazard. The top two activities are highlighted and are listed below:

- Coordinate with the Ohio Department of Natural Resources (ODNR) Division of Water regarding the lack of maintenance and inspection of dams.**
This activity addresses the fact that there is a lack of maintenance of the dams, which creates safety issues. By coordinating with ODNR Division of Water about increasing maintenance and inspections of the dams, the structural soundness of the dams will be ensured and in doing so, the safety of the residents.
- Identify dams throughout the county to determine if they fall under state regulation.**
This activity will allow the responsibility for regulation and inspection to be determined. If the dams are found to fall under state regulation, maintenance and inspection can be implemented.
- Work to encourage the Ohio Department of Natural Resources to complete emergency action plans and inundation maps for the dams under federal ownership. Notify private owners of the need to complete emergency action plans as well.**
This activity was added at the request of OEMA, after it was made apparent that the dams in Lawrence County are without emergency action plans and inundation maps.

5.0 Highest Rated Activities and Action Plan

The Core Group chose a total of 76 potential activities. Of those 76 activities, 23 were labeled as “prioritized” activities. The Core Group evaluated the activities by first taking into account the risk assessment ranking of the hazards located in Section 4. The various hazards had been ranked according to past historical events and the cumulative costs of each potential disaster.

5.1 Highest Rated Activities

Flooding

1. Seek emergency funding to replace floodwall pump station control system. (32.8)
2. Seek funding for debris removal in streams. (28.8)
3. Educate the public about flood damage prevention. (27.9)
4. Develop backup plans in case of communication failures. (27.8)
5. Adopt and enforce anchoring criteria for mobile homes. (27.7)
6. Inventory storm water drainage problem areas. (27.3)

Winter Storms

1. Seek funding for equipment. (28.7)
2. Identify equipment needs. (28.5)
3. Develop a list of equipment resources and contractors. (28.3)
4. Educate the public about winter storm risks and damage prevention. (28.3)

Tornadoes

1. Seek funding to improve the tornado warning systems. (28.8)
2. Educate the public about protection during a tornado. (28.3)
3. Develop backup plans in case of communication failures. (28.2)
4. Encourage maintenance of trees in right-of-way areas. (28.1)

Earthquakes

1. Educate the public about earthquake potential. (27.5)
2. Identify areas where additional utility cut-offs are needed to isolate utility systems. (26.0)
3. Develop backup plans in case of communication failures. (26.0)

Droughts/Wildfires

1. Identify areas where fire-fighting equipment is needed. (27.2)
2. Develop/improve cooperative response agreements. (27.1)
3. Strengthen existing penalties for arsonists. (27.0)

Landslide/Subsidence

1. Educate the public of the locations of hazard areas. (27.2)
2. Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones. (25.2)

Severe Storms

1. Encourage maintenance of trees in right-of-way areas. (28.4)
2. Develop an audible alert system. (27.7)
3. Develop backup plans in case of communication failures. (27.1)

Dam Failures

1. Coordinate with ODNr Division of Water regarding lack of maintenance and inspection of dams. (25.9)
2. Identify dams throughout the county to determine if they fall under state regulation. (25.6)

5.2 Participating Community Goals and Action Items

The Core Group reviewed all the hazard information in Section 4 and the highest rated activities in Section 5.1 and established countywide goals which to reflect the overall desires of the participants. These include:

Goal 1: Address educational needs, potential building damage and critical infrastructure expose to flooding.

Goal 2: Improve early warning and disaster based communications system throughout the county.

Goal 3: Address the impact of debris as it relates to potential hazard events and interference with communications..

In accordance with the FEMA requirements each participating community must have mitigation action items in the plan to address natural hazards in the community. Communities first developed a comprehensive collection of actions which follows. Next they selected items they believed would have the greatest impact based on the planning goals established and could implement as funding became available noted with bold text.

Village of Athalia

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for mobile homes. See 5.3 Action Items Schedule lack of uniform building codes

Hazard: Flooding

Action Item: Seek funding for anchoring of mobile homes.

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for propane tanks. See 5.3 Action items Schedule lack of uniform building codes

Hazard: Flooding

Action Item: Develop backup plans in case of communication failures.

Hazard: Winter Storms

Action Item: Identify equipment needs to respond to winter storm events.

Hazard: Tornadoes

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Severe Storms

Action Item: Encourage maintenance of trees in right-of-way areas.

Chesapeake Village

Hazard: Flooding

Action Item: Educate public about flood damage prevention. See 5.3 Action items Schedule, Educate the public

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for mobile homes. See 5.3 Action items Schedule, lack of uniform building codes

Hazard: Flooding

Action Item: Inventory storm water drainage problems. See 5.3 Action items Schedule, storm water drainage problems

Hazard: Flooding

Action Item: Develop countywide storm water drainage regulations. See 5.3 Action items Schedule, storm water drainage problems

Hazard: Flooding

Action Item: Identify critical facilities in the floodplain.

Hazard: Flooding

Action Item: Seek funding for anchoring of mobile homes.

Hazard: Flooding

Action Item: Seek funding for relocation/flood protection of critical facilities.

Hazard: Flooding

Action Item: Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level.

Hazard: Flooding

Action Item: Investigate developing zoning regulations in jurisdictions without zoning.

Hazard: Flooding

Action Item: Develop backup plans in case of communication failures.

Hazard: Flooding

Action Item: Educate the public regarding regulations pertaining to watercourse alterations.

Hazard: Flooding

Action Item: Adopt and enforce criteria for propane tanks.

Hazard: Flooding

Action Item: Investigate developing building codes and inspection systems in jurisdictions without building codes.

Hazard: Flooding

Action Item: Seek funding for weather radios.

Hazard: Flooding
Action Item: Seek funding for debris removal in streams.

Hazard: Flooding
Action Item: Identify priority areas for mapping of unidentified floodplains or those where detailed flood elevations are needed.

Hazard: Flooding
Action Item: Identify priority areas for elevation, acquisition or retrofitting of buildings prone to flooding.

Hazard: Flooding
Action Item: Seek funding for flood mapping.

Hazard: Flooding
Action Item: Investigate adopting higher floodplain development standards.

Hazard: Flooding
Action Item: Seek funding for elevation, acquisition or retrofitting of buildings prone to flooding.

Hazard: Flooding
Action Item: Seek funding for back-flow preventers in areas of combined sanitary sewers.

Hazard: Winter Storms
Action Item: Identify equipment needs to respond to winter storm events.

Hazard: Winter Storms
Action Item: Seek funding for snow removal equipment.

Hazard: Winter Storms
Action Item: Develop a list of equipment resources and contractors.

Hazard: Winter Storms
Action Item: Educate public about winter storm risks and damage prevention.

Hazard: Tornadoes
Action Item: Educate public about protection during a tornado.

Hazard: Tornadoes
Action Item: Develop backup plans in case of communication failures.

Hazard: Tornadoes
Action Item: Adopt and enforce anchoring criteria for mobile homes.

Hazard: Tornadoes
Action Item: Seek funding for anchoring of mobile homes.

Hazard: Tornadoes
Action Item: Adopt and enforce anchoring criteria for propane tanks.

Hazard: Tornadoes

Action Item: Investigate developing building codes and an inspection system in jurisdictions without them.

Hazard: Tornadoes

Action Item: Seek funding to improve the tornado warning system.

Hazard: Tornadoes

Action Item: Seek funding for weather radios.

Hazard: Tornadoes

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Tornadoes

Action Item: Identify areas where tornado shelters are needed.

Hazard: Tornadoes

Action Item: Seek funding for tornado shelters.

Hazard: Earthquakes

Action Item: Identify areas where additional utility cut-offs are needed to isolate utility systems.

Hazard: Earthquakes

Action Item: Investigate developing building codes and inspection systems in jurisdictions without building codes.

Hazard: Earthquakes

Action Item: Develop backup plans in case of communication failures.

Hazard: Earthquakes

Action Item: Educate public about earthquake potential.

Hazard: Drought/Wildfire

Action Item: Increase enforcement and prosecution of arsonists.

Hazard: Drought/Wildfire

Action Item: Strengthen existing penalties for arsonists.

Hazard: Drought/Wildfire

Action Item: Develop/improve cooperative response agreements.

Hazard: Drought/Wildfire

Action Item: Educate public about fire risks and damage prevention.

Hazard: Drought/Wildfire

Action Item: Investigate developing zoning regulations in jurisdictions without zoning.

Hazard: Drought/Wildfire

Action Item: Identify areas where fire-fighting equipment is needed.

Hazard: Drought/Wildfire

Action Item: Seek funding for equipment.

Hazard: Drought/Wildfire

Action Item: Identify areas with large amounts of woody debris from February 2003 ice storm.
Seek funding for removal of woody debris.

Hazard: Drought/Wildfire

Action Item: Identify areas where fire break lines are needed.

Hazard: Drought/Wildfire

Action Item: Encourage maintenance of fire break lines.

Hazard: Drought/Wildfire

Action Item: Develop public hotline to report arsonists.

Hazard: Landslide/Subsidence

Action Item: Investigate developing zoning.

Hazard: Landslide/Subsidence

Action Item: Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones.

Hazard: Landslide/Subsidence

Action Item: Identify landslide, mined areas and problem soil areas.

Hazard: Landslide/Subsidence

Action Item: Seek funding for mapping and subsurface investigations.

Hazard: Landslide/Subsidence

Action Item: Develop regulations for developing in high-risk areas.

Hazard: Landslide/Subsidence

Action Item: Coordinate with the Soil Conservation Service to improve logging practices.

Hazard: Landslide/Subsidence

Action Item: Educate public of locations of hazard areas.

Hazard: Landslide/Subsidence

Action Item: Seek funding to obtain equipment and to repair problem areas.

Hazard: Severe Storms

Action Item: Develop an audible alert system.

Hazard: Severe Storms

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Severe Storms

Action Item: Investigate developing building codes and inspection systems in jurisdictions without building codes.

Hazard: Severe Storms

Action Item: Educate public about severe weather risks and damage prevention.

Hazard: Severe Storms

Action Item: Develop backup plans in case of communication failures.

Hazard: Severe Storms

Action Item: Seek funding for weather radios.

Village of Coal Grove

Hazard: Flooding

Action Item: Seek funding for back-flow preventers in areas of combined sanitary sewers.

Hazard: Drought/Wildfire

Action Item: Seek funding for debris removal in streams. See 5.3 Action items Schedule, Woody debris

Hazard: Winter Storms

Action Item: Educate public about winter storm risks and damage prevention.

Hazard: Dams

Action Item: Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.

Hazard: Tornadoes

Action Item: Educate public about protection during a tornado.

Hazard: Earthquakes

Action Item: Identify areas where additional utility cut-offs are needed to isolate utility systems.

Hazard: Earthquakes

Action Item: Educate public about earthquake potential.

Hazard: Drought/Wildfire

Action Item: Educate public about fire risks and damage prevention.

Hazard: Landslide/Subsidence

Action Item: Seek funding for mapping and subsurface investigations.

Hazard: Severe Storms

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Severe Storms

Action Item: Educate public about severe weather risks and damage prevention.

Village of Hanging Rock

Hazard: Flooding

Action Item: Seek emergency funding to replace floodwall pump station control system.

Hazard: Flooding

Action Item: Investigate developing building codes and inspection systems in jurisdictions without building codes. See 5.3 Action items Schedule, lack of uniform building codes

Hazard: Flooding

Action Item: Investigate developing zoning regulations in jurisdictions without zoning.

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for mobile homes.

Hazard: Flooding

Action Item: Inventory storm water drainage problem areas.

Hazard: Flooding

Action Item: Identify priority areas for elevation, acquisition or retrofitting of buildings prone to flooding.

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for propane tanks.

Hazard: Flooding

Action Item: Identify priority areas for mapping of unidentified floodplains or those where detailed flood elevations are needed.

Hazard: Flooding

Action Item: Seek funding for flood mapping.

Hazard: Flooding

Action Item: Seek funding for debris removal in streams.

Hazard: Winter Storms

Action Item: Identify equipment needs to respond to winter storm events.

Hazard: Winter Storms

Action Item: Seek funding for snow removal equipment.

Hazard: Tornadoes

Action Item: Adopt and enforce anchoring criteria for mobile homes.

Hazard: Tornadoes

Action Item: Seek funding for anchoring of mobile homes.

Hazard: Tornadoes

Action Item: Adopt and enforce anchoring criteria for propane tanks.

Hazard: Tornadoes

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Tornadoes

Action Item: Seek funding to improve the tornado warning systems.

Hazard: Drought/Wildfire
Action Item: Identify areas where fire-fighting equipment is needed.

Hazard: Drought/Wildfire
Action Item: Seek funding for equipment.

Hazard: Drought/Wildfire
Action Item: Develop/improve cooperative response agreements.

Hazard: Landslide/Subsidence
Action Item: Coordinate with the Soil Conservation Service to improve logging practices.

Hazard: Landslide/Subsidence
Action Item: Seek funding to obtain equipment and to repair problem areas.

Hazard: Severe Storms
Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Severe Storms
Action Item: Develop an audible alert system.

City of Ironton

Hazard: Flooding
Action Item: Seek emergency funding to replace floodwall pump station control system. See 5.3 Action items Schedule, flood impacted structures

Hazard: Flooding
Action Item: Develop backup plans in case of communication failures. See 5.3 Action items Schedule, tornado warning system

Hazard: Flooding
Action Item: Seek funding for back-flow preventers in areas of combined sanitary sewers.

Hazard: Flooding
Action Item: Seek funding for debris removal in streams.

Hazard: Winter Storms
Action Item: Identify equipment needs to respond to winter storm events.

Hazard: Tornadoes
Action Item: Educate public about protection during a tornado.

Hazard: Tornadoes
Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Earthquakes
Action Item: Educate public about earthquake potential.

Hazard: Drought/Wildfire

Action Item: Seek funding for removal of woody debris from the February 2003 ice storm.

Hazard: Drought/Wildfire

Action Item: Identify areas where fire break lines are needed.

Hazard: Landslide/Subsidence

Action Item: Educate the public of the locations of hazard areas.

Hazard: Severe Storms

Action Item: Develop an audible alert system.

Village of Proctorville

Hazard: Tornadoes

Action Item: Seek funding to improve the tornado warning system. See 5.3 Action items Schedule, tornado warning system

Hazard: Tornadoes

Action Item: Identify areas where tornado shelters are needed.

Village of South Point

Hazard: Flooding

Action Item: Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level. See 5.3 Action items Schedule, flood impacted structures

Hazard: Flooding

Action Item: Adopt and enforce anchoring criteria for propane tanks.

Hazard: Flooding

Action Item: Seek funding for back-flow preventers in areas of combined sanitary sewers.

Hazard: Flooding

Action Item: Develop backup plans in case of communication failures.

Hazard: Flooding

Action Item: Seek funding for debris removal in streams.

Hazard: Flooding

Action Item: Seek funding for elevation, acquisition or retrofitting of buildings prone to flooding.

Hazard: Flooding

Action Item: Investigate developing zoning regulations in jurisdictions without zoning.

Hazard: Flooding

Action Item: Seek funding for flood mapping.

Hazard: Flooding

Action Item: Identify critical facilities in the floodplain.

Hazard: Flooding

Action Item: Develop countywide storm water drainage regulations.

Hazard: Flooding

Action Item: Inventory storm water drainage problem areas.

Hazard: Winter Storms

Action Item: Identify equipment needed to respond to winter storm events.

Hazard: Winter Storms

Action Item: Seek funding for snow removal equipment.

Hazard: Dams

Action Item: Identify dams throughout the county to determine if they fall under state regulation.

Hazard: Dams

Action Item: Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.

Hazard: Tornadoes

Action Item: Seek funding for weather radios.

Hazard: Tornadoes

Action Item: Investigate developing building codes and inspection systems in jurisdictions without them.

Hazard: Tornadoes

Action Item: Educate the public about protection during a tornado.

Hazard: Tornadoes

Action Item: Seek funding to improve the tornado warning systems.

Hazard: Tornadoes

Action Item: Identify areas where tornado shelters are needed.

Hazard: Tornadoes

Action Item: Seek funding for tornado shelters.

Hazard: Tornadoes

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Tornadoes

Action Item: Adopt and enforce anchoring criteria for propane tanks.

Hazard: Tornadoes

Action Item: Seek funding for anchoring of mobile homes.

Hazard: Tornadoes

Action Item: Adopt and enforce anchoring criteria for mobile homes.

Hazard: Earthquakes

Action Item: Identify areas where additional utility cut-offs are needed to isolate utility systems.

Hazard: Drought/Wildfire

Action Item: Increase enforcement and prosecution of arsonists.

Hazard: Drought/Wildfire

Action Item: Identify areas where fire-fighting equipment is needed.

Hazard: Drought/Wildfire

Action Item: Seek funding for equipment.

Hazard: Drought/Wildfire

Action Item: Educate the public about fire risks and damage prevention.

Hazard: Drought/Wildfire

Action Item: Identify areas with large amounts of woody debris from February 2003 ice storm.

Hazard: Drought/Wildfire

Action Item: Seek funding for removal of woody debris.

Hazard: Landslide/Subsidence

Action Item: Investigate developing zoning regulations in jurisdictions without zoning.

Hazard: Landslide/Subsidence

Action Item: Educate the public of the locations of the hazard areas.

Hazard: Landslide/Subsidence

Action Item: Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones.

Hazard: Landslide/Subsidence

Action Item: Coordinate with the Soil Conservation Service to improve logging practices.

Hazard: Landslide/Subsidence

Action Item: Seek funding to obtain equipment and to repair problem areas.

Hazard: Severe Storms

Action Item: Encourage maintenance of trees in right-of-way areas.

Hazard: Severe Storms

Action Item: Educate the public about severe weather risks and damage prevention.

5.3 Action Items Schedule

The Lawrence officials and staff as well as all participating jurisdiction, to act as a starting point in assessing the activities on a yearly basis, will utilize this document.

Model Implementation Schedule	Implementation Schedule (Year)	Project Estimate	Responsible Agency/ Position
Flooding			
There are repetitive loss structures and other <u>flood impacted structures</u> that should be addressed. Develop an HMGP plan for flood-impacted structures as funding becomes available.	End of 2010	\$ 1 million	Lawrence County EMA Director
People are not often aware of the damage that floods can do. <u>Educate the public</u> about flood damage through the use of brochures, public service announcements, etc.	Ongoing	\$5,000	Local floodplain office - building code coordinator
There is a <u>lack of uniform building codes</u> throughout the County. Work on developing countywide building codes.	2010	\$50,000	Lawrence County Regional Planning Director of Planning
There are <u>storm water drainage problems</u> throughout the county, with numerous causes. Inventory storm water drainage problem areas. Study the feasibility of storm water drainage regulations and work towards implementation as funding becomes available.	2009	\$150,000	County Commissioners
Tornadoes			
There is a need for a countywide <u>tornado warning system</u> as well as improvement in communication systems. Develop a warning system and improve current communication systems as funding becomes available.	End of 2011	\$500,000	Lawrence County EMA Director
Severe Storms			
Severe storms often cause <u>communication failures</u> . Improvement of emergency communications is needed as funding becomes available.	2008	\$400,000	Lawrence County EMA Director
Drought/Wildfire			
<u>Woody debris</u> , from the Ice Storm of 2003 especially, increases fire risk. Seek funding for woody debris cleanup.	Ongoing	\$1.1 million	Community Action Organization - Director of Special Projects

6.0 Plan Maintenance

The Lawrence County All Natural Hazards Mitigation Plan will be incorporated by reference into other existing planning documents and will be used in conjunction with the Flood Damage Prevention Resolution in the unincorporated areas and the Flood Development Ordinances in each of the seven participating jurisdictions where appropriate. The Lawrence County Planning Commission will refer to the Hazard Mitigation Plan wherever feasible within the existing documents that support mitigation and growth within the County. Each individual community will be responsible for integrating the plan with any existing plans and/or ordinances in that

community. In addition, each community will be responsible for implementing their highest rated mitigation alternatives. A listing by community can be found in Section 5.2.

The Lawrence County All Natural Hazards Mitigation Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The Action Items Schedule found in Section 5.3 of the plan, includes a firm schedule and timeline, and identifies the local agencies and organizations participating in the plan evaluation.

The public will also be involved in the monitoring and updating process. The Lawrence County EMA will convene an annual meeting with the Core Group for the purpose of monitoring and evaluating the plan, which will be open to the public. The meeting will be advertised in the local newspaper for public involvement. Activities that have been completed will be noted as such in the plan and new activities will be added when necessary. Every five years, the major plan updates will be sent to the Ohio Emergency Management Agency to ensure that the newly updated items still meet the required Disaster Mitigation Plan standards.

The Lawrence County EMA will review the goals and action items to determine their relevance to changing situations in the County to ensure that they are addressing current and expected conditions. The EMA will also review the risk assessment portion of the Mitigation Plan to determine if this information should be updated or modified, given any new available data.

A copy of the plan will reside at the Lawrence County EMA office as well as the County Commissioner's office.

APPENDIX 1 – Resolutions of Participation

Resolution # 050603

Whereas, the County of Lawrence is preparing a natural hazard mitigation plan;

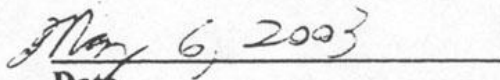
Whereas, the Village of Athalia recognizes it is susceptible to natural hazards;

Whereas a natural hazards plan is one way to plan for, and mitigate Against natural hazards;

Whereas, the Disaster Mitigation Act of 2000 requires communities to develop, adopt, and implement a natural hazard mitigation plan as a Condition of receiving federal mitigation funds.

Be it ordained that the Village of Athalia is committed to participate in The preparation, adoption, and implementation of the plan. In doing so The Village of Athalia agrees to supply a representative to attend the plan Development meetings, and to develop mitigation actions specific to the Village of Athalia.


Signature


Date

VILLAGE OF CHESAPEAKE

RESOLUTION 2003 -02

DISASTER MITIGATION

WHEREAS, THE COUNTY OF LAWRENCE IS PREPARING A NATURAL HAZARD MITIGATION PLAN;

WHEREAS, THE VILLAGE OF CHESAPEAKE RECOGNIZES IT IS SUSCEPTIBLE TO NATURAL HAZARDS;

WHEREAS, A NATURAL HAZARDS PLAN IS ONE WAY TO PLAN FOR, AND MITIGATE AGAINST NATURAL HAZARDS;

WHEREAS, THE DISASTER MITIGATION ACT OF 2000 REQUIRES COMMUNITIES TO DEVELOP, ADOPT, AND IMPLEMENT A NATURAL HAZARD MITIGATION PLAN AS A CONDITION OF RECEIVING FEDERAL MITIGATION FUNDS.

NOW THEREFORE: BE IT RESOLVED THAT THE VILLAGE OF CHESAPEAKE IS COMMITTED TO PARTICIPATE IN THE PREPARATION, ADOPTION, AND IMPLEMENTATION OF THE PLAN. IN DOING SO, THE VILLAGE OF CHESAPEAKE AGREES TO SUPPLY A REPRESENTATIVE TO ATTEND THE PLAN DEVELOPMENT MEETINGS, AND TO DEVELOP MITIGATION ACTIONS SPECIFIC TO THE VILLAGE OF CHESAPEAKE.

PASSED 04-07-03

ATTEST *Peggy Houston*

Peggy Houston
CLERK

Jim Justice
MAYOR

I HEREBY CERTIFY THE ABOVE TO BE A TRUE AND CORRECT COPY OF RESOLUTION 2002-09 AS PASSED BY THE COUNCIL OF CHESAPEAKE, OHIO ON, THAT I AM FULLY AUTHORIZED TO EXECUTE THIS CERTIFICATE. 04-07-03

Peggy Houston
PEGGY HOUSTON CLERK TREASURER

Resolution No. 34-02

Passed 12-19-2002 19

RESOLUTION AUTHORIZING PARTICIPATION IN THE PREPARATION, ADOPTION, AND IMPLEMENTATION OF A NATURAL HAZARD MITIGATION PLAN WITH LAWRENCE COUNTY

WHEREAS, the County of Lawrence is preparing a natural hazard mitigation plan; and

WHEREAS, the Village of Coal Grove recognizes it is susceptible to natural hazards; and

WHEREAS, a natural hazards plan is one way to plan for, and mitigate against natural hazards; and

WHEREAS, the Disaster Mitigation Act of 2000 requires communities to develop, adopt and implement a natural hazard mitigation plan as a condition of receiving federal mitigation funds.

NOW THEREFORE BE IT RESOLVED, that the Village of Coal Grove is committed to participate in the preparation, adoption and implementation of the plan. In doing so, the Village of Coal Grove agrees to supply a representative to attend the plan development meetings and to develop mitigation actions specific to the Village of Coal Grove.

First reading 12-19-2002
Second reading 12-19-2002
Third reading 12-19-2002

ATTEST:

B.T. Wright
MAYOR

Juanita Markel
CLERK

I, Juanita Markel, Clerk of the Village of Coal Grove, County of Lawrence do hereby certify this to be a true and exact resolution, as adopted by Coal Grove Village Council, at a regularly scheduled meeting on 12-19-2002.

Juanita Markel
JUANITA MARKEL, CLERK

----- *Resolution* -----
2003 - 03

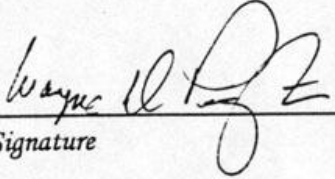
Whereas, the County of Lawrence is preparing a natural hazard mitigation plan;

Whereas, the Village of Hanging Rock recognizes it is susceptible to natural hazards;

Whereas a natural hazards plan is one way to plan for, and mitigate against natural hazards;

Whereas, the Disaster Mitigation Act of 2000 requires communities to develop, adopt, and implement a natural hazard mitigation plan as a condition of receiving federal mitigation funds.

Be it ordained that the Village of Hanging Rock is committed to participate in the preparation, adoption and implementation of the plan. In doing so, the Village of Hanging Rock agrees to supply a representative to attend the plan development meetings, and to develop mitigation actions specific to the Village of Hanging Rock.



Signature

6-2-2003

Date

Sponsored by: J. Roberts

RESOLUTION NO. 03- 37

TO DEVELOP, ADOPT AND IMPLEMENT THE DISASTER MITIGATION ACT OF 2000

WHEREAS, the County of Lawrence is preparing a natural hazard mitigation plan;

WHEREAS, the City of Ironton recognizes it is susceptible to natural hazards;

WHEREAS, a natural hazards plan is one way to plan for and mitigate against natural hazards;

WHEREAS, the Disaster Mitigation Act of 2000 requires communities to develop, adopt, and implement a natural hazard mitigation plan as a condition of receiving federal mitigation funds.

NOW THEREFORE, BE IT RESOLVED: by the Council of the City of Ironton, Ohio as follows:

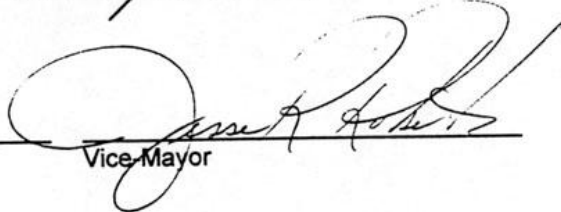
Section 1: That the City of Ironton is committed to participate in the preparation, adoption and implementation of the plan.

Section 2: That the City of Ironton agrees to supply a representative to attend the plan development meetings and to develop mitigation actions specific to the City of Ironton.

Section 3: This legislation is hereby declared to be an emergency measure for the protection of public health, safety and welfare.

Passed this 26 day of June, 2003.


Clerk of Council


Vice Mayor

Approved or Vetoed

Date: 6/26/03


Mayor

Resolution 03-2

Whereas, the Village of Proctorville is preparing a natural hazard mitigation plan;

Whereas Proctorville recognizes it is susceptible to natural hazards;

Whereas a natural hazards plan is one way to plan for, and mitigate against natural hazards;

Whereas, the Disaster Mitigation Act of 2000 requires communities to develop, adopt, and implement a natural hazard mitigation plan as a condition of receiving federal mitigation funds.

Be it ordained that the Village of Proctorville is committed to participate in the preparation, adoption, and implementation of the plan. In doing so, the Village of Proctorville agrees to supply a representative to attend the plan development meetings, and to develop mitigation actions specific to Proctorville.

Passed 3-31-03

Mayor [Signature]

Clerk [Signature]

Held

Tuesday April 1, 2003

19


Mr. Classing made a motion to adopt Resolution 03-1 a Resolution to Adopt A Natural Hazards Plan in Accordance With the Disaster Mitigation Act of 2000. Mr. Smith seconded. Roll call -- yes by all.

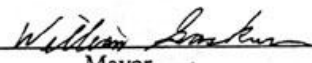
Mr. Collins made a motion to approve the Clerk/Treasurer's Financial Reports and the Revenue/Expenditure Account Status Reports ending Feb. 28 and March 31, 2003. Mr. Smith seconded. Roll call -- yes by all.

Other items discussed;

- ✓ The Water Improvements Project is being advertised for bids March 28 and April 4 and the bids on the 4 contracts will be opened April 16.
- ✓ We have to put the 3 mill operating levy on the ballot this November as the present one that was voted on by the public to continue for a continuing period of time expires after this year as determined by the state legislators
- ✓ Lift station #7 was vandalized the night of March 29 and several electrical components were stolen worth around \$5,000. We will attempt to make the station more secure with fencing and better locks as this is the second time this has happened.
- ✓ No word yet from Congressman Ted Strickland's office on our request for his help in getting the railroad to fix their rough crossings in the Village.
- ✓ The VFW is having a parade on Saturday, April 5th to honor our troops fighting in Iraq. The parade will start in Proctorville and continue to Ironton. We will put up our flags and yellow ribbons to show our support
- ✓ The swimming pool was discussed and we haven't heard anything yet from ODNR on our grant application for repairs. It would probably be more feasible to tear down the old pool and build a smaller new one somewhere else but we would need grant money to do this.

Mr. Armstrong made a motion to adjourn. Mr. Classing seconded. Roll call -- yes by all.


Clerk


Mayor

APPENDIX 2 – Press Release (Copy)

The Ironton Tribune

Wednesday, March 5, 2003

County Awarded Grants for Natural Hazard Mitigation From Staff Reports

Lawrence County was recently awarded a pair of grants to assist in the development of a natural hazard mitigation plan.

The County received a Pre-Disaster Mitigation Grant from the Ohio Emergency Management Agency and an Appalachian Flood Risk Reduction Initiative Grant from the Ohio Department of Natural Resources.

The Ohio EMA grant is for \$12,524 with the County having to come up with \$4,175 in matching funds. The ODNR grant is for \$5,000, with the County having to come up with a \$5,000 match.

According to Joe Black, building code coordinator with the Lawrence County Floodplain Management Program, the matching funds will be in donated time and materials and will not come out of the County's general fund.

The grants will also assist incorporated areas that choose to participate in the plan. A planning committee consisting of local government agency officials and representatives of the business community has been working on developing this plan.

This plan will identify actions that can be taken to reduce or eliminate risk to people and property from natural hazards and their effects. The plan is a requirement of the Disaster Mitigation Act of 2000. This act requires that communities adopt hazard mitigation plans to be eligible for funding under the Federal Emergency Management Agency's Hazard Mitigation Grant Program.

The Hazard Mitigation Grant Program provides hazard mitigation funds to communities following presidentially declared disasters. As a recipient of these planning grants, Lawrence County is required to have its adopted hazard mitigation plan in place by November 1, 2003.

The next planning meeting will be at the Lawrence County Emergency Management Agency office at 9:30 a.m. March 11. For more information, contact Mike Boster at 533-4375 or Black at 533-2159.

APPENDIX 3 – Notification Letters to Adjacent Counties Other Agencies



Lawrence County Emergency Services Agency

Donald W. Mootz, Executive Director
(740) 532-0911 515 Park Avenue
fax – (740) 534-0911 Ironton, Ohio 45638

To: Kim Carver, Scioto County EMA Director
Charles Michael Null, Gallia County EMA Director
Gary Radabaugh, Jackson County EMA Director
Gordon Merry, Cabell County, WV Office of Emergency Services Director
Bill Willis, Wayne County, WV Office of Emergency Services Director
Eddie Lambert, Ashland-Boyd County, KY Office of Emergency Mgmt. Director
Dennis Bass, Greenup County, KY Office of Emergency Management Director

From: Don Mootz, Lawrence County Emergency Management Agency

Date: November 7, 2003

Subject: Lawrence County All-Natural Hazards Pre-Disaster Mitigation Plan

The purpose of this letter is to notify you that Lawrence County is actively developing a Lawrence County All-Natural Hazards Pre-Disaster Mitigation Plan. This is a required notification.

In an effort to continue to meet the mission of protecting lives, property, economic viability and quality of life for the people of Lawrence County, the County Commissioners have contracted with the Community Action Organization and Fuller, Mossbarger, Scott and May Engineers, Inc. (FMSM) to help them facilitate and complete the Lawrence County Pre-Disaster Mitigation Plan. This plan will address natural disasters that could affect local communities, including flooding, tornados, winter storms, earthquakes or other natural disasters. By developing the Pre-Disaster Plan, Lawrence County can locate their areas of risk, assess the magnitude of the risk and develop strategies and priorities for reducing risk. All 7 jurisdictions within the County will be participating.

This letter serves as a notification to adjacent communities that Lawrence County is actively developing the Lawrence County All Natural Hazard Pre-Disaster Mitigation Plan. Please contact us as necessary with any questions, comments, concerns, or for more information or clarification on this planning effort.

cc: Don Armour
Janice Gartner
Brigitte Bouska



COPY

Lawrence County Floodplain Management Program

305 North Fifth Street, Ironton, Ohio 45638 • (740) 533-2159 • Fax: (740) 532-4763

November 4, 2002

Mr. Dan Bartholf
National Weather Service
400 Parkway Road
Charleston, WV 25309

Dear Mr. Bartholf:

Lawrence County is starting to prepare a plan to find ways to protect our county from natural hazards. We have created a Natural Hazard Mitigation Planning Committee which will be meeting monthly to review our situation and possible ways to reduce natural hazard damages.

This letter is our request for assistance from your agency. Specifically:

Do you have any information on past natural hazard events (such as floods, tornadoes, severe storms) and possible solutions to the risk of these hazards?

Is your agency planning or implementing any natural hazard reduction projects that we should be aware of?

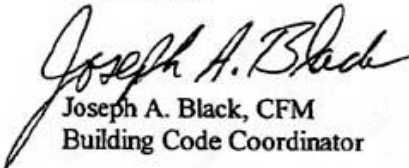
Does your agency have any financial or technical assistance programs that would help us?

Do you have any suggestions on what types of activities we should be reviewing that would reduce damages from natural hazards in Lawrence County?

Would you be able to meet with the Natural Hazard Mitigation Planning Committee to advise us on your agency's work and recommendations?

If you have any questions, please call me at 740-533-2159.

Respectfully,


Joseph A. Black, CFM
Building Code Coordinator

The letter above was sent to the following agencies:

Dean State Forest
Matt Morgan
149 Dean State Forest Road
Pedro, Ohio 45659

Chamber of Commerce
Pat Clonch
216 Collins Ave.
South Point, Ohio 45680

National Weather Service
Dan Bartholf
480 Parkway Road
Charlestown, WV 25309

Lawrence Soil and Water
Peggy Reynolds
5459 SR 217
Willowwood, Ohio 45696

Ohio EPA
Abby Lavelle
2195 Front Street
Logan, Ohio 43138

Wayne National Forest
Mike Baines
6518 SR 93
Pedro, Ohio 45659

The Ironton Tribune
Teresa Moore
P.O. Box 647
Ironton, Ohio 45638

The Herald Dispatch
David Malloy
P.O. Box 2017
Huntington, WV 25781

APPENDIX 4 – Meeting Minutes (Copy)

AFRRI Kick-Off Meeting Agenda – 6/25/02

Date: 6/25/02

Time: (2 hr 25 Minutes)

Place: Lawrence County

Topic/Activity	Time	Person	Method	Outcome
Introductions	10 Minutes	All	Round-robin	Get to know one another
Review Agenda	5 Minutes	ODNR Staff	Discussion	Consensus on agenda
AFRRI Powerpoint Presentation	45 Minutes	ODNR Staff	Discussion	Understanding AFRRI, Mitigation Planning Process, Roles, Reporting and Fiscal Responsibilities
Break	10 Minutes	All		Relax the Brain!
Organizing Resources to Plan – Local Governmental Support of Planning Effort	5 Minutes	ODNR Staff Facilitation	Discussion	Understanding / Consensus
Organizing Resources to Plan – Formation of the Core Group	15 Minutes	ODNR Staff Facilitation	Brainstorming and Discussion	Understanding/ Consensus
Organizing Resources to Plan – Identify Expertise to Help with Planning Process and Assign Roles	30 Minutes	ODNR Staff Facilitation	Brainstorming and Discussion	Understanding / Consensus
Homework for Next Meeting – 1. Identifying and Soliciting other Agencies and Organizations to Participate, 2. Identify public outreach and participation techniques	10 Minutes	ODNR Staff Facilitation	Discussion	Understanding / Consensus
Review Parking Lot issues	5 Minutes	ODNR Staff Facilitation	Discussion	Address Parking Lot issues and/or prioritize them for future agenda
agenda/clarify roles for next meeting. Determine Future Meeting Dates	5 Minutes	ODNR Staff Facilitation	Discussion	Next meeting agenda
Meeting evaluation	5 Minutes	All	Round-robin	Generate meeting improvement ideas

Lawrence County AFRRRI Planning Meeting Notes – 9/23/02 Grandview Inn

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Pamela Wilds, First Federal Savings Bank; Terri Taylor, Ohio River Bank; Ray Howard, HECLA; Rich Mountain, Sherer Mountain Ins.; Larry Jewell, Lawrence County EMA; James Ward, Lawrence County EMA; Michael Boster, Lawrence County EMA; Ronald Dickess, Dickess Insurance; Ron McClintock, Village of Athalia

Joe Black will be lead for AFRRRI project, taking over for Doug Cade. The county also received a pre-disaster mitigation planning grant from the Ohio EMA. The two grants will be combined to produce one natural hazard mitigation plan document. Joe will be contacting consultants to obtain bids for writing the plan.

Janice Gartner reviewed the tasks that were covered during the June 25, 2002 kick-off meeting to determine what Doug Cade had accomplished prior to his departure.

Joe will contact the local officials of the cities and villages (with the exception of Athalia, who is already a core group member) to determine if they intend to participate in the plan. Joe will send letters and follow-up with telephone calls.

The contact list for the project notification and historical hazard data request that was generated during the kick-off meeting was reviewed and Joe will send letters out to these agencies/entities.

Public outreach activities were reviewed and discussed. Pam Wilds will generate a press release to send to the local media. Public meeting notice posting locations were discussed.

Natural hazards that will be included in the plan were discussed. The ODNR multi-hazard map was presented to the core group. Dams will be added to the map.

The next meeting will be held on October 22, 2002 at 7:00 p.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 10/22/02 Lawrence County EMA Office, 7:00PM

Present – Janice Gartner, ODNR, Joseph Black, Lawrence County Floodplain Administrator, Ron Dickess, Dickess Insurance Agency, Larry Jewell, Lawrence Co. EMA, Michael Boster, Lawrence Co. EMA, Ron McClintock, Village of Athalia, Juanita Markel, Clerk/Treasurer of Village of Coal Grove, Charles Markel, resident of Village of Coal Grove and David Michael, Lawrence CAO.

The meeting opened with a review of the September 23, 2002 meeting notes.

Joe Black updated the core group on the progress he has made since the last meeting. Joe has sent out certified letters to the local government officials regarding the AFRRRI and PDM planning grants with an invitation to participate in the plan.

Joe has contacted John Rheem with the U.S. Army COE for historical flood data. He will also get 2000 Census data from the Ohio Department of Development. Joe will send out agency letters this week. Joe will check with Pam Wilds regarding the status of the press releases.

Mike Boster has contacted Marshall University for historical disaster information. He will also check with Ohio University. He E-mailed the National Weather Service for hazard information. He can only get data after 1986 from the NWS. He was going to check to see if there were any county hazard plans available and thought his office only had information from the 1996 and 1997 flood events.

Janice Gartner will check with Rich Roths of FEMA to see if past mitigation and buyouts needed to be included in this plan document.

Joe Black will obtain a plat book to begin the asset inventory portion of the plan.

The next meeting will be held on November 20, 2002 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 11/20/02 Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR, Joseph Black, Lawrence County Floodplain Administrator, Ron Dickess, Dickess Insurance Agency, Larry Jewell, Lawrence Co. EMA, Michael Boster, Lawrence Co. EMA, James Ward, Lawrence Co. EMA; Juanita Markel, Clerk/Treasurer of Village of Coal Grove, David Michael, Lawrence CAO. Pamela Wilds, First Federal Savings Bank; and Terri Taylor, Ohio River Bank.

The meeting opened with a review of the October 22, 2002 meeting notes. Janice Gartner distributed a spreadsheet of weather and hazard event dates. Joe Black indicated that he did not receive any responses to the letters sent to the local governments regarding the AFRRRI and PDM grants. He also had not received any responses from the agency letters and the COE. Joe also sent letters to the local newspapers. Pam Wilds is working on a press release and will coordinate with Joe. Mike Boster indicated that Marshall University needed hazard dates to start doing research. Mike will E-Mail Ohio University for information.

Joe provided a plat book to Janice to assess the possibility of using this document in the asset inventory. Methods of obtaining asset information will be discussed at the next meeting.

The group divided up the weather and hazard events to do further historical research. The information from this research will be reviewed at the next meeting.

The next meeting will be held on January 8, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 1/8/03
Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Larry Jewell, Lawrence Co. EMA; Michael Boster, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Bob Clark, Ohio EMA; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank and Dan Williams, Village of Athalia.

The meeting opened with a review of the November 20, 2002 meeting notes. Joe Black reported that the press release was being completed. A resolution of intent to participate in the Lawrence County plan was submitted from Coal Grove.

Group members reported back on the results of the historical hazard research they had done. Terry Taylor reported that earthquake information was obtained from the Library of Congress. James Ward obtained flood information from 1832, 1861, 1884, 1897, and 1913 from a Lawrence County History Book. James also obtained flash flood information from May 15, 1996 indicating three inches of rain fell in two hours and the Scottown area was impacted by a flash flood on June 23, 1996. Dan Williams submitted a summary of flood and other storm events that impacted the Village of Athalia. Mike Boster E-mailed the Ohio EMA office for damage data. A summary of infrastructure damage from the 1997 flood was submitted. No reply has been received from Ohio University and Marshall University. Joe Black researched microfilm from 1884, 1913, 1937 and 1948 and found some useful information. The U.S. Army Corps of Engineers still has not responded to information requests; Joe will try to contact them again. Mike has flood information from this past Spring's flood event.

The group discussed how to complete the asset inventory. They agreed to use average values of structures as this was the most efficient way to complete the asset inventory. This was due to time constraints, sheer number of structures in the hazard areas and the lack of easily accessible local data. Janice Gartner will bring larger scale GIS maps to the next meeting to assist in the asset inventory.

The next meeting will be held on February 11, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 2/11/03
Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Larry Jewell, Lawrence Co. EMA; Don Mootz, Lawrence Co. EMA Michael Boster, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Bob Clark, Ohio EMA; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank; and Pam Wilds, First Federal Savings Bank.

The meeting opened with a review of the January 8, 2003 meeting notes. Joe Black reported that he had received historical flood information from the 1940's to the 1970's from the U.S. Army Corps. of Engineers. Janice Gartner will E-mail Joe and Pam Wilds a press release about the hazard mitigation planning grants that the county has received. Michael Boster said that the consulting firm of R.D. Zande had presented a proposal to do the hazard assessment piece of the planning document.

The question arose of whether the planning group could include communities that did not choose to participate in the counties plan. Janice will check with the Ohio EMA about this. David Michael said that he was willing to go to the council meetings of those currently choosing not to participate in the county natural hazard mitigation plan to explain the consequences of non-participation.

The group agreed to complete the asset inventory by using aerial photographs with the flood hazard layer shown. Non-residential structures and critical facilities would be identified on the aerials and average structural values from census data would be utilized to obtain asset valuations. Janice will mail the aerials to Joe within the week or early next week. The group also completed the hazard ranking utilizing Ohio EMA criteria.

During the next meeting the asset information that had been completed will be reviewed. The group will also begin working on problem statements to begin the goal setting process. The next meeting will be held on March 11, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRI Planning Meeting Notes – 3/11/03 Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Larry Jewell, Lawrence Co. EMA; Michael Boster, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Dale Mootz, Lawrence CAO; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank; Pam Wilds, First Federal Savings Bank; Juanita Market, Village of Coal Grove; and Ron Dickess, Dickess Insurance.

The meeting opened with a review of the February 11, 2003 meeting notes. Pam Wilds said that she sent a copy of the press release to the Ironton newspaper. Janice Gartner said that the press release should be sent to all media that covers the county. The structure inventories that were done from the aerials were given to Janice. Dale Mootz discussed the AFRRI and PDM contracts with the CAO and said some amendment to these contracts may be needed. Dale inquired if there were any State of Ohio approved natural hazard mitigation plans. Janice was not aware of any. Dale said that he believed that one more attempt should be made to contact the communities currently not participating in the county plan. Dale will discuss the issue with the county commissioners and contact the communities and set up meetings to explain the grants and project. Janice said that the late communities will have to catch up on the items that the current planning group has completed. Janice will E-mail Dale a list of items that need to be completed. Consultants interested in writing the plan will be presenting to members of the planning group. A decision of who will write the plan will be made after the presentations.

The hazard ranking that was completed by the group was reviewed and revised in light of the February winter storm. The group began working on problem statements for flooding to begin the goal setting process. The next meeting will be held on April 11, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 4/8/03
Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Don Mootz, Lawrence Co. EMA; Larry Jewell, Lawrence Co. EMA; Michael Boster, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Dale Mootz, Lawrence CAO; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank; Paul Sheets, City of Ironton; Philip Biggs, City of Ironton; Jim Buchanan, Mayor, Village of Proctorville; Darryl Harris, Village of Chesapeake.

The meeting opened with a review of the March 11, 2003 meeting notes. Darryl Harris provided a copy of the county auditors asset valuations. The group spent the remainder of the meeting working on problem statements for natural hazards. The representatives from Chesapeake, Proctorville and Ironton were provided copies of an aerial map with the flood hazard boundary designated. They identified the commercial structures and critical facilities in the flood hazard area and critical facilities within their corporate limits.

The group will continue working on problem statements for the remaining hazards and will begin the goal setting process at the next meeting. The next meeting will be held on May 7, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 5/7/03
Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Don Mootz, Lawrence Co. EMA; Larry Jewell, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Dale Mootz, Lawrence CAO; Terri Taylor, Ohio River Bank; Pam Wilds, First Federal Savings Bank; Ron McClintock, Village of Athalia; Jim Buchanan, Mayor, Village of Proctorville; Rick Dunfee, Village of Proctorville; Darryl Harris, Village of Chesapeake.

The meeting opened with a review of the April 8, 2003 meeting notes. Janice Gartner provided the group a list of problem statements that had been completed to date. She also provided a list where the problem statements had been sorted under general goal statements and objectives. These goals and objectives were compiled from other mitigation plans. The group was to review this information and come up with any suggestions or changes to the goals and objectives. Janice will try to come up with actions that address each of the problem statements for the next planning meeting. The group then completed the problem statements for natural hazards.

Information regarding which communities have zoning and/or building codes and which properties were part of the counties last HMGP project are needed from the planning group members. A contract has been signed with FMSM Engineers to write the mitigation plan. Janice will compile a list of critical facilities in the floodplain that were compiled during the asset inventory. Market values of these structures will need to be obtained. The date for a public meeting was discussed. We will shoot for July, dependent upon what has been completed by FMSM.

The group will work on goals, objectives and actions at the next meeting. The next meeting will be held on June 11, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 6/11/03
Lawrence County EMA Office, 9:30AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Larry Jewell, Lawrence Co. EMA; James Ward, Lawrence Co. EMA; Michael Boster, Lawrence Co. EMA; Dale Mootz, Lawrence CAO; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank; Dan Williams, Village of Athalia; Mark Root, Village of Proctorville; Rick Dunfee, Village Administrator, Village of Proctorville; Philip Biggs, City Engineer, City of Ironton; Jeanette Waginger, Vice Mayor, Village of Hanging Rock; Carolyn Hopper, resident, Village of Hanging Rock; and two other attendants, one from Hanging Rock, one from South Point (could not read signatures).

The meeting opened with a review of the May 7, 2003 meeting notes. The Village of Hanging Rock has joined in the county natural hazard mitigation plan. The village had recently experienced a landslide that was a result of the February, 2003 ice storm. A structure was damaged and two others could be impacted as a result of the landslide. Pre-Applications for this project and six others for HMGP funding had been submitted to the Ohio EMA. Janice Gartner will send Jeanette Waginger a natural hazard map and list of items needed to be included in plan.

The group spent the remainder of the meeting reviewing the list of goals, objectives, problem statements and action items. In order to expedite the completion of the action item list, it was agreed that a small group consisting of Dale Mootz, Janice Gartner, Joe Black and Mike Boster would meet again to complete this task. The completed list would then be submitted to the group at the next meeting to prioritize the action items.

The next meeting will be held on July 2, 2003 at 9:30 a.m. at the Lawrence County EMA office in Ironton, Ohio.

Lawrence County AFRRRI Planning Meeting Notes – 7/2/03
Lawrence County EMA Office, 9:39 AM

Present – Janice Gartner, ODNR; Joseph Black, Lawrence County Floodplain Administrator; Larry Jewell, Lawrence County EMA; James Ward, Lawrence County EMA; Michael Boster, Lawrence County EMA; Dale Mootz, Lawrence CAO; David Michael, Lawrence CAO; Terri Taylor, Ohio River Bank; Ron McClintock, Village of Athalia; Philip Biggs, City Engineer, City of Ironton; Darryl Harris, Village of Chesapeake; and Bill Gaskins, Mayor, Village of South Point.

The meeting opened with a review of the June 11, 2003 meeting notes. The group spent the remainder of the meeting scoring the natural hazard matrix sheet that listed the action items.

The next meeting will be a public meeting August 21, 2003 at 12:00 p.m. at the Grandview Inn in Ironton, Ohio.

APPENDIX 5 – Problem Statements and Mitigation Alternatives

Problem Statements

Flooding

- Control systems for pump stations of floodwalls need to be replaced.
- Building in the floodplain requires flood resistant materials and proper construction methods but this is often not possible due to a lack of a local building code and inspection system.
- There is a need for zoning overlays for the floodplain areas.
- There is a concern that people are not always aware of the damage that floods can do.
- There is a potential for communication systems failures during a flood.
- Mobile homes are not anchored or elevated and residents may not have the funds to properly anchor their mobile homes.
- There are storm water drainage problems throughout the county.
- There is a need for storm water drainage regulations to address increased building.
- There are buildings (commercial and residential) that are prone to flooding.
- There is a lack of adequate funding to reduce structural losses to buildings in the floodplain.
- There is a concern over the potential explosion hazards caused by unanchored propane tanks.
- There is a problem with combined sanitary sewers filling with floodwaters, causing backups in structures. There are no backflow preventers in structures.
- There are areas in the county that flood, but are not identified on flood maps or are mapped only with approximate elevations.
- There is inadequate funding for flood mapping.
- There is a need for higher flood standards than NFIP minimums due to historical flood events and to lessen future damages.
- There is a problem with debris in streams.
- There are concerns over illegal watercourse alterations.
- There are currently critical facilities in the floodplain.
- Relocation or flood protection of critical facilities is costly.
- There is a need for additional levels of protection for critical facilities.

Tornadoes

- Up until recently, there was a lack of a building code for wind resistance. There is also a lack of an inspection system.
- There are concerns that the public is not aware of what to do in a tornado event.
- The public is often not aware of dangerous weather situations.
- There is the potential for destruction of communication systems.
- There is a concern over the lack of anchoring of mobile homes and the cost of doing this.
- There is a concern over propane tanks and the need for anchoring regulations.

Severe Storms

Thunderstorms

- There is a need for tree maintenance in utility easement areas.
- There is the potential for damage to inadequately constructed roofs and buildings during severe storm events.
- There is concern that the public is not aware of the risks from severe storms.

- There is inadequate warning about impending storms.
- There is a concern that people are not always able to receive the warnings given by the media.
- The potential for communication systems failure during severe storm events exists.

Winter Storms

- There is a lack of equipment for clean up.
- There is a lack of signed agreements with contractors for cleanup.
- There are no funds available to recover costs for repair of equipment damaged during cleanup.
- There are communications failures (lack of generators, towers falling down) associated with winter storms.
- Overhead utility lines become problematic during winter storm events.
- There is a need for public education on winter storm events.
- There is a lack of backup communications when radio stations are down.

Landslide/Subsidence

- There are concerns that additional building precautions are not being taken.
- The public is not aware of where the hazard areas are.
- Utilities can be destroyed by landslides and subsidence.
- There is a lack of information and/or conflicting information of where high hazard areas are located.
- There is a need for additional investigation and mapping to determine where old mines are located.
- There is a lack of additional building standards in high-risk areas.
- There is a lack of logging regulations and permits on private land.
- There is a lack of adequate equipment and funding to repair the landslide areas.

Earthquakes

- There is a problem with utility line ruptures.
- There is a lack of education of the public on risks of earthquakes.
- Up until just recently, there was a lack of building codes for earthquake resistance.

Drought/Wildfires

- There is a need for public education on general fire prevention during peak seasons and on the importance of removing fuel sources from around houses.
- Currently, areas of wildland interface are not identified.
- Enforcement is needed for violators as arson is a problem in the county.
- There is a need for an arson reporting system.
- Current penalties for arson are too weak and are ineffective.
- There is inadequate fire response equipment.
- The county does not have adequate funding for additional fire protection and response equipment.
- There are concerns that a local fire department may not be able to handle a fire alone.
- The large amounts of debris from the February ice storms have increased the wildfire hazard.
- There is a need to maintain fire access roads and fire break lines.
- There is a need for fire break lines and more equipment.

Dam Failure

- There is a lack of maintenance and inspection of dams.
- Private dams have not been identified or inspected.

Mitigation Alternatives

Flooding

- No Action.
- Seek emergency funding to replace floodwall pump station control system.
- Investigate developing building codes and inspection system for the floodplain in jurisdictions without building codes.
- Investigate developing zoning regulations in jurisdictions without zoning.
- Educate the public about flood damage prevention.
- Seek funding for weather radios to warn residents of impending flood situations.
- Develop backup plans in case of communication failures.
- Adopt and enforce anchoring criteria for mobile homes.
- Seek funding for the anchoring of mobile homes.
- Inventory storm water drainage problem areas.
- Develop county-wide storm water drainage regulations.
- Identify priority areas for elevation, acquisition or retrofitting of buildings prone to flooding.
- Adopt and enforce anchoring criteria for propane tanks.
- Seek funding for back-flow preventers in areas of combined sanitary sewers.
- Identify priority areas for mapping of unidentified floodplains or those where detailed flood elevations are needed.
- Seek funding for flood mapping.
- Investigate adopting higher floodplain development standards.
- Seek funding for debris removal in streams.
- Educate the public regarding regulations pertaining to watercourse alterations.
- Identify critical facilities in the floodplain.
- Seek funding for relocation/flood protection of critical facilities.
- Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level.

Tornadoes

- No Action.
- Investigate developing building codes and an inspection system in jurisdictions without them.
- Educate the public about protection during a tornado.
- Seek funding for weather radios to promote awareness.
- Develop backup plans in case of communication failures.
- Adopt and enforce anchoring criteria for mobile homes.
- Seek funding for the anchoring of mobile homes.
- Adopt and enforce anchoring criteria for propane tanks.
- Encourage maintenance of trees in right-of-way areas.
- Seek funding to improve the tornado warning systems.
- Identify areas where tornado shelters are needed.
- Seek funding for tornado shelters.

Severe Storms

Thunderstorms

- No Action.
- Encourage maintenance of trees in right-of-way areas.
- Investigate developing building codes and inspection system in jurisdictions without them.
- Educate the public about severe weather risks and damage prevention.
- Develop an audible alert system.
- Develop backup plans in case of communication failures.

Winter Storms

- No Action.
- Educate the public about winter storm risks and damage prevention.
- Identify equipment needs for use in responding to winter storm events.
- Seek funding for equipment.
- Develop a list of equipment resources and contractors.

Landslides/Subsidence

- No Action.
- Investigate developing zoning regulations in jurisdictions without zoning.
- Educate the public of locations of hazard areas.
- Identify areas where additional utility cut-offs are needed to isolate systems in high-risk zones.
- Identify landslide, mined areas and problem soil areas.
- Seek funding for mapping and subsurface investigations.
- Develop regulations for development in high-risk areas.
- Coordinate with Soil Conservation Service to improve logging practices.
- Seek funding to obtain equipment and to repair problem areas.

Earthquakes

- No Action.
- Identify areas where additional utility cut-offs are needed to isolate utility systems.
- Investigate developing building codes and inspection systems in jurisdictions without them.
- Educate the public about earthquake potential.
- Develop backup plans in case of communication failures.

Drought/Wildfires

- No Action.
- Educate the public about fire risks and damage prevention.
- Investigate developing zoning regulations in jurisdictions without zoning.
- Increase enforcement and prosecution of arsonists.
- Develop a public hotline to report arsonists.
- Strengthen existing penalties for arsonists.
- Identify areas where fire- fighting equipment is needed.
- Seek funding for equipment.
- Develop/improve cooperative response agreements.
- Identify areas with large amounts of wood debris from February 2003 ice storm.
- Seek funding for removal of wood debris.

- Identify areas where fire break lines are needed.
- Encourage maintenance of fire break lines.

Dam Failures

- No Action.
- Identify dams throughout the county to determine if they fall under state regulation.
- Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.

APPENDIX 6 – Public Notice (Copy)

The following public notice appeared in the Ironton Tribune on August 17, 2003:

There will be a public meeting to review Lawrence County's proposed Pre-Disaster Mitigation Plan on Thursday, August 21, 2003. The meeting will be held at the Grandview Inn in South Point at 12:00 noon. The public hearing will be in conjunction with the Lawrence County Regional Planning Commission's monthly meeting. The Pre-Disaster Mitigation Plan covers all natural hazards and is required by the Federal Emergency Management Agency in order for the County to be eligible for future Hazard Mitigation Grant Funds.

APPENDIX 7 – Critical Facilities

Facility	Address	City	Zip
Pulley Nursing Home	8384 County Road 1	South Point	45680
Sunset Nursing Home	813 1/2 Marion Pike	Coal Grove	45638
Fountain Head Nursing	4734 Gallia Pike	Franklin Furnace	45629
Heartland of Riverview	7743 County Road 1	South Point	45680
Bryant Health Center	5th & Clinton Street	Ironton	45638
Pulley Care Center	335 Township Road 1026	South Point	45680
Jo-Lin Health Center	10th & Clinton Street	Ironton	45638
Sheriff's Department	115 S. 5th Street	Ironton	45638
Lawrence County 911	515 Park Avenue	Ironton	45638
Lawrence County EMA	515 Park Avenue	Ironton	45638
County Courthouse/Commissioners	One Veteran's Square	Ironton	45638
Lawrence County Court House (Municipal Court and Probation Office)	10916 County Road 1	Chesapeake	45619
City of Ironton City Center	301 South Third Street	Ironton	45638
Village of Athalia, Offices	14407 State Route 7	Proctorville	45669
Village of Chesapeake, Offices	211 Third Avenue	Chesapeake	45619
Village of Coal Grove, Offices	513 Carlton-Davidson Lane	Coal Grove	45638
Village of Hanging Rock, Offices	100 Scioto Avenue	Hanging Rock	45638
Village of Proctorville, Offices	305 State Street	Proctorville	45669
Village of South Point, Offices	408 Second Street West	South Point	45680
Lawrence County Health Dept. and Ironton City Health Dept.	2122 South 8th Street	Ironton	45638
Chesapeake Law Enforcement Agency	203 3rd Avenue	Chesapeake	45619
Coal Grove Law Enforcement	221 Lane Street	Coal Grove	45638
Ohio Highway Patrol	126 Private Road	South Point	45680
Ohio Highway Patrol	1336 County Road 60	South Point	45680
Aid Village Fire Dept.	14112 State Route 141	Aid	

Facility	Address	City	Zip
Burlington-Fayette Village Fire Dept.	7681 County Road 1	Burlington	
Chesapeake Village Fire Dept.	400 Winters Road	Chesapeake	45619
Coal Grove Village Fire Dept.	513 Carlton-Davidson Lane	Coal Grove	45638
Decatur Village Fire Dept.	15697 State Route 93	Pedro	45659
Elizabeth Village Fire Dept. Station #1	127 Township Road 113	Pedro	45659
Elizabeth Village Fire Dept. Station #2	Intersection St. Rt. 650 & County Road 26	Pine Grove	
Fayette Village Fire Dept. #2	51 Township Road 93	Sunrise	
Hamilton Village Fire Dept. #1	1671 County Road 1-A	Hamilton	
Hamilton Village Fire Dept. #2	Hanging Rock Village Hall	Hanging Rock	45638
Ironton Fire Dept.	526 South Front Street	Ironton	45638
Lawrence Village Fire Dept. #1	7485 State Route 141	Kitts Hill	
Lawrence Village Fire Dept. #2	5216 County Road 6	Andis	
Perry Village Fire Dept. #1	4633 State Route 243	Deering	
Perry Village Fire Dept. #2	649 County Road 1	Sheridan	
Proctorville Community Fire Dept.	410 State Street	Proctorville	45669
Rome Village Fire Department #1	9666 State Route 7	Rome	
Rome Village Fire Department #2	15981 State Route 7	Miller	
South Point Village Fire Dept.	104 Linden Avenue	South Point	45680
Upper Village Fire Dept.	3619 County Road 181	Hecla	
Windsor Village Fire Dept.	8064 County Road 2	Dobbstown	
EMS Station 11	2324 South 8th Street	Ironton	45638
EMS Station 12	205 Sixth Street	South Point	45680
EMS Station 13	11024 County Road 1	Chesapeake	45619
EMS Station 14	267 Township Road 1060	Proctorville	45669
EMS Station 15	14112 State Route 141	Willow Wood	45696
Chesapeake High	10181 County Road 1	Chesapeake	45619
Chesapeake Middle	10255 County Road 1	Chesapeake	45619

Facility	Address	City	Zip
Chesapeake Elementary	11359 County Road 1	Chesapeake	45619
Dawson Bryant Elementary	4503 State Route 243	Deering	
Dawson Bryant Middle	#1 Hornet Lane	Coal Grove	45638
Dawson Bryant High	#1 Hornet Lane	Coal Grove	45638
Fairland High	7875 State Route 7	Rome Township	
Fairland West Middle	110 Township Rd. 1125	Rome Township	
Fairland East Elementary	10732 State Route 7	Rome Township	
Ironton High School	1701 South 7th Street	Ironton	45638
Ironton Junior High	1701 South 7th Street	Ironton	45638
Ironton Middle School	302 Delaware Street	Ironton	45638
Ironton-Kingsbury Elementary	315 South 6th Street	Ironton	45638
Ironton-Whitwell Elementary	2213 South 4th Street	Ironton	45638
West Ironton Kindergarten	1207 North Third Street	Ironton	45638
Rock Hill High	2171 County Road 26		
Rock Hill Middle	4676 State Route 93		
Rock Hill Elementary #1	15725 State Route 93		
Rock Hill Elementary #2	4824 State Route 141		
Rock Hill Elementary #3	2325 County Road 26		
Rock Hill Elementary #4	300 Main Street	Hanging Rock	45638
South Point High	302 High Street	South Point	45680
South Point Middle	201 Park Avenue	South Point	45680
South Point Elementary	501 Washington Street	South Point	45680
Burlington Elementary	8781 County Road 1	Burlington	
Symmes Valley High	14788 State Route 141		
Symmes Valley Elementary	14680 State Route 141		
Collins Career Center	11627 State Route 243		
St. Joseph High	Sixth and Quincy Streets	Ironton	45638

Facility	Address	City	Zip
St. Lawrence Elementary	305 North 7th Street	Ironton	45638
Andis Alternative School	2204 State Route 217		
Open Door School	604 Carlton Davidson Lane	Coal Grove	45638
Open Door School	421 Lorain Street	Ironton	45638
Extremely Hazardous Substances Facilities			
Ameritech (SBC)	821 Park Avenue	Ironton	45638
AT&T Wireless	South Point Facility, Westview Drive		
Dow Chemical Co.	925 County Road 1A	Hanging Rock	45638
Hecla Water Association	15 Pvt. Road 13170	Proctorville	45638
Honeywell	3330 S. Third Street	Ironton	45638
McGinnis Inc.	502 Second St. Extension	South Point	45680
Ohio River Docks	510 Riverside Drive	Coal Grove	45638
Verizon	419 Third Ave. R.	Chesapeake	45619
Verizon	601 Maple Street	Proctorville	45638
Sam's Club	432 Private Drive 288	South Point	45680

APPENDIX 8 – HMGP Buyouts from the 1997 Flood

Address	City	Vacancy Date
<i>River Acres Subdivision</i>		
103 PVT Dr. 12640	Proctorville	5/25/2001
187 PVT Dr. 12640	Proctorville	1/27/2001
216 PVT Dr. 12640	Proctorville	6/31/2001
242 PVT Dr. 12640	Proctorville	5/25/2001
247 PVT Dr. 12640	Proctorville	8/12/2000
279 PVT Dr. 12640	Proctorville	9/19/2000
Lot 708 Private Dr. 1	Proctorville	1/2/2001
203 PVT Dr. 12368	Proctorville	12/8/2000
345 PVT Dr. 12368	Proctorville	7/20/2001
<i>Plantations Estates Subdivision</i>		
54 TWP Rd. 1223	Proctorville	10/8/2000
68 TWP Rd. 1223	Proctorville	11/1/2000
42 TWP Rd. 1224	Proctorville	5/25/2001
64 TWP Rd. 1224	Proctorville	10/26/2000
73 TWP Rd. 1224	Proctorville	10/8/2000
47 TWP Rd. 1224	Proctorville	5/25/2001
31 TWP Rd. 1224	Proctorville	7/20/2000
94 TWP Rd. 1223	Proctorville	9/26/2000
101 TWP Rd. 1223	Proctorville	9/26/2000
133 TWP Rd. 1222	Proctorville	5/25/2001
190 TWP Rd. 1222	Proctorville	1/27/2001
172 TWP Rd. 1222	Proctorville	5/25/2001
104 TWP Rd. 1222	Proctorville	9/19/2000
84 TWP Rd. 1222	Proctorville	4/22/2001
70 TWP Rd. 1222	Proctorville	7/14/2000
56 TWP Rd. 1222	Proctorville	9/19/2000
42 TWP Rd. 1222	Proctorville	9/26/2000
30 TWP Rd. 1222	Proctorville	11/18/2000
22 TWP Rd. 1222	Proctorville	2/20/2001
12 TWP Rd. 1222	Proctorville	9/31/2000
4 TWP Rd. 1222	Proctorville	10/26/2000
7328 St. Rt. 7 Rear	Proctorville	5/25/2001
39 TWP Rd. 1222	Proctorville	9/19/2000
<i>Indian Guyan Subdivision</i>		
28 TWP Rd. 1271	Proctorville	1/2/2001
20 TWP Rd. 1271	Proctorville	12/8/2000
Lots 6,7 Indian Guyan Park	Proctorville	9/26/2000
210 TWP Rd. 1271	Proctorville	5/25/2001

Address	City	Vacancy Date
<i>Rejon Acres Subdivision</i>		
185 TWP Rd. 1303	Proctorville	5/25/2001
53 TWP Rd. 1304	Proctorville	7/7/2000
78 TWP Rd. 1304	Proctorville	1/2/2001
98 TWP Rd. 1304	Proctorville	1/6/2001
116 TWP Rd. 1304	Proctorville	1/2/2001
148 TWP Rd. 1304	Proctorville	9/29/2000
467 TWP Rd. 1303	Proctorville	1/2/2001
<i>Miller East Subdivision</i>		
36 TWP Rd. 2374	Crn City	1/27/2001
73 TWP Rd. 1274	Miller	9/31/2000
265 TWP Rd. 1276	Crn City	1/5/2001
74 TWP Rd. 1045	Miller	6/31/2000
44 TWP Rd. 1048	Proctorville	12/8/2000
<i>Rice Holderby Subdivision</i>		
1 TWP Rd. 1295	Proctorville	12/8/2000
14 TWP Rd. 1296	Proctorville	2/20/2001
28 TWP Rd. 1296	Proctorville	3/8/2001
48 TWP Rd. 1296	Proctorville	5/25/2001
39 TWP Rd. 1296	Proctorville	3/27/2001
16 TWP Rd. 1296	Proctorville	9/19/2000
30 TWP Rd. 1295	Proctorville	10/26/2000
29 TWP Rd. 1134	Proctorville	10/26/2000
51 TWP Rd. 1295	Proctorville	9/26/2000
69 TWP Rd. 1295	Proctorville	9/26/2000
65 TWP Rd. 1295	Proctorville	9/26/2000
109 TWP Rd. 1295	Proctorville	6/2/2001
20 TWP Rd. 1294	Proctorville	10/10/2000
90 TWP Rd. 1294	Proctorville	9/26/2000
178 Co. Rd. 403	Proctorville	9/19/2000
42 TWP Rd. 1294	Proctorville	11/18/2000
28 TWP Rd. 1294	Proctorville	11/18/2000

APPENDIX 9 – FEMA Article, Miller South Buyouts

The following article was found on the FEMA Region V website located at: www.fema.gov/regions/v/ss/r5_n25.shtm.

Miller South: Lawrence County, Ohio

As coordinator of seven different mitigation projects after extensive flooding along the Ohio River in 1997, Doug Cade of Lawrence County Community Action, was primarily involved in acquiring and demolishing severely damaged properties. But in his meetings with residents and review of data from the Miller South flood area, Cade found that elevation of some flood-damaged properties was not only a viable alternative, but also the best one.

The unincorporated area of southeastern Lawrence County designated as Miller South in Cade's grant application is one of the most-often flooded areas in the entire state – with a total of 27 documented flood events since local record-keeping started in 1832. Eight of those floods have occurred since 1950. The small residential area seeking mitigation assistance there consisted of six large, upscale homes that had suffered repeated but not catastrophic damage in several recent high-water events.

“When I talked with the property owners and we looked at the data, there were a couple of good reasons to look at alternatives to acquisition,” said Cade. “First, these were large, fairly new homes on big lots that had a high pre-disaster market value – which meant buyouts would be prohibitively expensive. Second, the first floors of most of the properties were only a couple of feet below the Base Flood Elevation; and third, the families really wanted to stay in the area and were committed to following through with the structural work if we would help get government funding.”

Cade said the relatively straightforward structural changes that were needed to raise the Miller South homes to a disaster-resistant elevation were a major supporting factor. “After we talked with engineers and got estimates, it seemed pretty clear that – for these types of houses – adding three feet of elevation was kind of a magic number,” he said. “At three feet the expense and complexity of the work were clearly cost-effective. Once you got much over three feet of elevation, the jobs got more complicated and the costs went up fast.”

Outcomes

- The Miller South proposal submitted and ultimately approved by OEMA and FEMA included funding for six property elevations. By the time applications were reviewed and approved and funds became available, two property owners changed their minds but four stayed and went through with the elevation process.
- As of early 2002, all four families were still living in their newly elevated homes, with significantly reduced danger of injury or property damage in extreme weather – and enhanced property values based on the improved disaster resistance of their houses.
- Lawrence County kept four upscale properties on the active tax rolls, and greatly reduced the prospect of future public costs for emergency services, temporary housing, debris removal, etc. in one of its most-often flooded areas.

APPENDIX 10 – HMGP Grant Contracts from 1997 Flood

**State-Local Grant Agreement
Hazard Mitigation Grant Program (CFDA 83.548)
FEMA-DR-1164-OH
Declared March 4, 1997**

This Grant Agreement (the “Agreement”) is made and entered into by, and between, the State of Ohio, Department of Public Safety, Ohio Emergency Management Agency, located at 2855 West Dublin-Granville Road, Columbus, Ohio 43235-2206 (herein referred to as the “Grantee”); and Lawrence County, located at 111 South 4th Street, Ironton, Ohio, 45638, (herein referred to as the “Sub-grantee”).

1. Pursuant to the provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 USC 5121, et. seq. (“Stafford Act”) as amended, the Federal Emergency Management Agency (“FEMA”) has been authorized by Congress to make grants to states to mitigate natural disasters. The Ohio Emergency Management Agency (“OEMA”), has received grant funds for that purpose.
2. Grantee has been designated to receive, administer, and disburse FEMA mitigation funds for local government mitigation projects in areas of Ohio and to provide technical assistance with the Hazard Mitigation Grant Program (HMGP). The HMGP is authorized by Section 404 of the Stafford Act. Grantee shall monitor and evaluate the implementation of mitigation projects and control the disbursement of HMGP funds from FEMA.
3. Sub-grantee has submitted an application, which is incorporated herein by reference, to Grantee setting forth a list of activities (herein referred to individually as “Projects”) and Grantee and FEMA have approved the Projects, and agrees to complete the Project within two years of approval, unless a time extension is granted by the Grantee.
4. Sub-grantee shall participate in the development of, and shall coordinate and monitor the implementation of the local hazard mitigation measures; and shall regulate and control development within hazardous areas.
5. Sub-grantee has the legal authority to accept mitigation funds and shall provide all necessary financial and managerial resources to meet the terms and conditions of receiving federal and state mitigation funds. The financial management system must comply with 44 Code of Federal Regulations (CFR) Part 13 and OMB Circular A-87.
6. Sub-grantee shall use the mitigation funds solely for the approved Projects. Only those costs, which are allowable as defined in 44 CFR Part 13 and OMB Circular A-87, will be paid.
 - a. This Grant Agreement in the amount of **\$3,059,222** (“Funds”) will serve as the contract between the Grantee, Ohio EMA and the Sub-grantee for the purpose of Projects from property owners who voluntarily participate in the Project. This grant amount represents the total Federal and State share of the cost of the Project plus an administrative allowance as described below:
 - b. Total estimated cost of the mitigation project is: **\$3,562,400**

Total HMGP contribution is:	\$1,514,021
Total State of Ohio contribution is:	\$1,514,019
Local contribution of at least:	\$534,360

- c. Total administrative allowance is \$31,187. This figure is based on the HMGP funds provided for the project. Administrative funds are to be used to offset extraordinary costs of administering the mitigation project (e.g., travel, telephone supplies, etc.). The administrative allowance is figured on the following formula and may require an adjustment based on the final cost of the project at the time of closure. OMB Circular A-87 governs the use of these funds.
 - 3% of the first \$100,000 in project eligible costs;
 - 2% for the next \$900,000 in project eligible costs;
 - 1% for the next \$4,000,000 in project eligible costs; and
 - .5% for amounts over \$5,000,000 in project eligible costs.
 - d. Sub-grantee agrees to provide the necessary local cost share as required by 44 CFR Part 13.24 and the funding will be available within the specified period of time for completion of the Projects. Documentation of the use of the local cost share is required.
 - e. Obligations of Grantee are subject to provisions of Section 126.07 of the Ohio Revised Code.
7. Sub-grantee shall return to Grantee any HMGP and State funds, which are not supported by audit or other federal or state review of documentation maintained by the Sub-grantee. (44 CFR Part 13.26)
 8. Sub-grantee shall maintain records for the period set forth in 44 CFR Part 13.42 and shall give state and federal agencies access to, and the right to examine all records and documents related to use of mitigation funds.
 9. Sub-grantee shall comply with all applicable state and local ordinances, laws, regulations, building codes and standards applicable to this Project.

**State-Local Grant Agreement
Hazard Mitigation Grant Program (CFDA 83.548)
FEMA-DR-1164-OH
Declared March 4, 1997**

This Grant Agreement (the "Agreement") is made and entered into by, and between, the State of Ohio, Department of Public Safety, Ohio Emergency Management Agency, located at 2855 West Dublin-Granville Road, Columbus, Ohio 43235-2206 (herein referred to as the "Grantee"); and Lawrence County, located at 111 South 4th Street, Ironton, Ohio, 45638, (herein referred to as the "Sub-grantee").

1. Pursuant to the provisions of the Robert T. Stafford Disaster Relief and Emergency Resistance Act, 42 USC 5121, et. seq. ("Stafford Act") as amended, the Federal Emergency Management Agency ("FEMA") has been authorized by Congress to make grants to states to mitigate natural disasters. The Ohio Emergency Management Agency ("Ohio EMA"), has received grant funds for that purpose.
2. Grantee has been designated to receive, administer, and disburse FEMA mitigation funds for local government mitigation projects in areas of Ohio and to provide technical assistance with the Hazard Mitigation Grant Program (HMGP). The HMGP is authorized by Section 404 of the Stafford Act. Grantee shall monitor and evaluate the implementation of mitigation projects and control the disbursement of HMGP funds from FEMA.
3. Sub-grantee has submitted an application, which is incorporated herein by reference, to Grantee setting forth a list of activities (herein referred to individually as "Projects") and Grantee and FEMA have approved the Projects, and agrees to complete the Project within two years of approval, unless a time extension is granted by the Grantee.
4. Sub-grantee shall participate in the development of, and shall coordinate and monitor the implementation of the local hazard mitigation measures; and shall regulate and control development within the hazardous areas.
5. Sub-grantee has the legal authority to accept mitigation funds and shall provide all necessary financial and managerial resources to meet the terms and conditions of receiving federal and state mitigation funds. The financial management system must comply with 44 Code of Federal Regulations (CFR) Part 13 and OMB Circular A-87.
6. Sub-grantee shall use the mitigation funds solely for the approved Projects. Only those costs, which are allowable as defined in 44 CFR Part 13 and OMB Circular A-87, will be paid.
 - a. This Grant Agreement in the amount of **\$2,208,942** ("Funds") will serve as the contract between the Grantee, Ohio EMA and the Sub-grantee for the purpose of Projects from property owners who voluntarily participate in the Project. This grant amount represents the total Federal and State share of the cost of the Project plus an administrative allowance as described below.
 - b. Total estimated cost of the mitigation project is: \$2,734,200
Total HMGP contribution is: \$1,318,680
Total State of Ohio contribution is: \$868,680
Local contribution: \$546,440

- c. Total administrative allowance is \$21,582. This figure is based on the total HMGP funds provided for the project. Administrative funds are to be used to offset extraordinary costs of administering the mitigation project (e.g., travel, telephone supplies, etc.). The administrative allowance is figured on the following formula and may require an adjustment based on the final cost of the project at the time of closure.
 - 3% of the first \$100,000 in project eligible costs;
 - 2% for the next \$900,000 in project eligible costs;
 - 1% for the next \$4,000,000 in project eligible costs; and
 - .5% for amounts over \$5,000,000 in project eligible costs.
 - d. Sub-grantee agrees to provide the necessary local cost share as required by 44 CFR Part 13.24 and the funding will be available within the specified period of time for completion of the Projects. Documentation of the use of the local cost share is required.
 - e. Obligations of Grantee are subject to provisions of Section 126.07 of the Ohio Revised Code.
7. Sub-grantee shall return to Grantee any HMGP and State funds, which are not supported by audit or other federal or state review of documentation maintained by the Sub-grantee. (44 CFR Part 13.26)
8. Sub-grantee shall maintain records for the period set forth in 44 CFR Part 13.42 and shall give state and federal agencies access to, and the right to examine all records and documents related to the use of mitigation funds.
9. Sub-grantee shall comply with all applicable state and local ordinances, laws, regulations, building codes, and standards applicable to this Project.

APPENDIX 11 – Winter Storm 2003 Information

2003 President’s Day Weekend Winter Snow / Ice Storm Summary

July 1, 2003

February 15, 2003 weekend and following brought a winter storm to the Midwest, which impacted at least 15 Ohio counties and resulted in a Presidential FEMA Disaster Declaration. The storm dumped crippling amounts of snow over some Ohio counties but southeast Ohio was covered by a heavy ice storm.

Infrastructure

In Lawrence County, several political jurisdictions were affected. The storm most impacted areas of higher altitude and affected the northern-most townships in Lawrence County. Specific areas heavily affected included the following townships: Washington, Decatur, Symmes, Elizabeth, Aid, Mason, Hamilton, Upper, Lawrence and Windsor. The remaining townships were affected to a slightly lesser degree including Perry, Fayette, Union, and Rome. Various townships operated under emergency conditions as Trustees, paid township employees and contracted labor worked to cleanup debris and open roads and drainage. The ice accumulated on utility lines, trees, and roadways and caused major infrastructure damage. State Route 93 and other state roads were closed or impacted because of the debris. County and township roads were also blocked and many road surfaces and drainage systems were damaged. County Engineer crews worked overtime to clear debris and open roads. Ohio Department of Transportation crews worked to clear state roads. Contractors were hired to assist with the cleanup. Subsequent rainfall caused small stream flooding because of the debris. The damage and cost for cleanup resulted in a Declaration of Public Assistance (PA) and access to various programs on the state and federal level. (The PA damage totals are not yet available.)

Individuals

The ice storm also affected residents as electric power was lost and people were without heat, water, communications and a means to keep and prepare food. Some residents were without electricity for over 20 days. Families lost their refrigerated or frozen foodstuff. The Lawrence County Department of Job and Family Services assisted through various programs to reissue food stamps and assist as programs allowed. Local food pantries were also contacted and asked for support. The American Red Cross established emergency shelters and provided mobile feeding units to affected areas. Some people in the affected areas who could travel sought shelter in local hotel facilities or with family for relief. The majority of people stayed in their homes. Homes were damaged or destroyed in some cases. Some lost automobiles and other household items. This resulted in a declaration for Individual Assistance (IA) from various state and federal disaster relief programs.

Businesses

Businesses were also without power and lost inventory and suffered economic loss from lack of customers. Some reported losses exceeding \$30,000. Many of the businesses remained closed for days after the storm. The U.S. Small Business Administration (SBA) made low interest loans available to assist businesses that suffered losses.

Emergency Response County/Local

The Lawrence County 911 Emergency Communications Center was inundated with calls for help. Communications towers failed as back-up systems were not available for such a long-term event. The main Emergency Alert System (EAS) radio tower in Scioto County collapsed because of the ice. The county Emergency Management also responded, in-taking damage information and coordinating disaster relief. The Emergency Operations Center was opened and maintained on a 24-hour basis for several days. ARES RACES provided some emergency communications support. The County Health Department provided assistance. Emergency responders struggled to access areas because of the amount of debris blocking roadways. Fire fighters and other volunteers spent days removing trees and debris from roadways to allow for passage. Fire departments also provided wellness checks and emergency water, food and heating needs. Law enforcement officers made wellness checks in addition to patrolling roads and areas for public safety. The Sheriff issued a "Level –three Snow Emergency" initially and people were discouraged from travel. EMS units were restricted to accessible roads only.

Other

State of Ohio and U.S. Forestry personnel reported heavy damages to timber and the forest in general. Some experts estimated that tree damages/loss exceeded 40% to 60% of the forest. Crews arrived from state and federal resources to help mitigate tree damage and to clean up debris. The Ohio National Guard provided manpower and equipment to clear debris and support local efforts. Approximately 75 Guard remained in the county for several days. The Ohio Department of Transportation, Ohio Highway Patrol, Ohio Emergency Management Agency and other state agencies worked to assist in storm recovery. Ohio EPA helped to coordinate debris removal and disposal issues. FEMA and SBA Officials provided support for local governments and individual/business damage assessment. Volunteer groups began to coordinate long-term recovery, i.e., Volunteer Organizations Active in Disaster (VOAD), Lutheran Social Services, United Methodists, etc. Community Action and other local programs assisted, as they were able. The utility companies utilized mutual aid and contractors to supplement their efforts to restore service. Utilities affected included electricity, water, propane, and other fuel, cable TV, and telephone/pager/cellular.

Conclusion

The President's Day Weekend Winter Snow / Ice Storm was an event that affected nearly every aspect of life for many Lawrence County citizens. Individuals have incurred losses that they will not recover from. Some individual and business losses have or will be addressed through state and federal programs. Local governments are still recovering and the impact on public and private lands and resources will be long-term. The county learned some valuable lessons and has identified some mitigation strategies as a result of the storm. County officials will plan and act to assure that emergency communications/backup systems are made more capable and secure. Utility companies will take a more active part in emergency planning. Emergency response agencies and departments recognize the value of preparedness activities. The county has a more focused plan to utilize volunteer groups for short and long-term response and recovery functions. Local government officials are more attuned to the value of a coordinated response. Mitigation strategies have begun to be developed that will lessen the impact of all future disasters (not just winter storms) on the county and its citizens.

CC: Donald W. Mootz, Executive Director of Lawrence County Emergency Services
Dale Mootz and Joe Black, Lawrence County Regional Planning Commission
Lawrence County Emergency Services File
PDM Grant File

Lawrence County Emergency Services Agency Letter (Copy)

February 19, 2003

Dale W. Shipley, Executive Director
Ohio Emergency Management Agency
2855 Dublin-Granville Road
Columbus, OH 43235-2206

Lawrence County verbally declared an Emergency at 09:18 hours on February 18, 2003.

Winter Storm Impact:

Lawrence County and all its jurisdictions have been impacted by the ice/winter storm as follows:

It is estimated that 80%-90% of roadways have been impacted by the storm by fallen trees and utility lines. In many cases, fire departments and other responders, trustees, utility companies and even volunteers have worked around the clock / long hours to clear trees and debris. State Route 93, State Route 373, numerous county and township roads are still being blocked or impacted. Many have been cleared temporarily (one lane barely passable) but still are littered by debris. Travel time is limited to and from areas of the county impacting emergency response to the residents. Many homes and automobiles have sustained damage from falling trees, limbs, utility lines, etc. Trees are still falling and creating problems in these areas. One trustee described the areas as "looks like a war zone." Another stated "looks like a bomb exploded across the township." "The roads are in terrible shape because the debris has just been pushed aside so far," said one trustee. Township crews are still working and there is limited information on damage totals in terms of dollar amounts. Some townships are contracting services and these are still working. There is still a tremendous amount of work to do with road clearance and debris removal in the townships.

Infrastructure/roads are impacted also by subsidence. We have a report of a loss of at least one bridge (Perry Township Road 138) and many reports of road surface damages, ditch line and drainage problems from debris, etc.

Most of the county was initially impacted by the utility outages and most areas continue to suffer. Electric, telephone, cable, cellular and emergency communications have been impacted (lost, reduced, affected). Restoration of services has been very slow due to the widespread nature of the emergency and due to road inaccessibility. It is estimated that at least 6000 plus homes and businesses are still without service. These conditions have resulted in individual and small business loss/impacts (grocery stores, quick stops, restaurants, etc. have had to dispose of inventory). Individuals are struggling to get heat and food. The EMA is coordinating with the Red Cross on this issue. There is one shelter open in the county. Lack of potable water is becoming an issue as public water system pump stations are inoperable and individual water wells cannot function.

Emergency Communications are reduced or eliminated as back-up systems have failed and tower sites have gone down. There are no generators to be found in the county. This has affected the dispatch of emergency crews...law, fire and EMS and EMA. Kerosene prices are now in excess of \$2 per gallon and the cost is impacting the public's ability to purchase fuel for portable heaters to keep warm. There are no portable heaters available.

We will assess and report additional details as they become available.

Respectfully,

Donald W. Mootz, Executive Director

Ironton Tribune Article, Sunday 3/16/03 (Copy)

Feds Offer Relief in Wake of Ice Storm – Lawrence One of 15 Ohio Counties in Disaster Declaration

By Michael Caldwell

Relief is on the way from the Federal Emergency Management Agency after President George W. Bush made a major disaster declaration Friday to help 15 Ohio counties recover from last month's snow and ice storms. More than 300 houses and businesses were damaged or destroyed in southern Ohio alone, and government expenses have totaled nearly \$17 million, according to The Associated Press.

The disaster declaration covers Adams, Jackson, Lawrence, Pike, Scioto, Gallia, Meigs, Vinton, Fayette, Franklin, Greene, Guernsey, Madison, Monroe and Muskingum counties.

"The president's declaration makes available several different programs to help repair homes, provide temporary housing, replace property and reimburse costs," said Ron Sherman, FEMA's federal coordinating officer for Ohio's relief effort. "The programs work together to provide relief to as many people as possible."

Sherman said no set limit exists on how much funding is available and that this region truly needs all the aid it can get. "I saw the digital photos taken by our field representatives, and it was amazing," he said. "In terms of downed trees and power lines, I have never seen that kind of ice buildup."

Anyone seeking assistance can begin the application process by calling 1-800-621-FEMA (3362) or 1-800-462-7585 (TTY) for the hearing and speech impaired. The toll-free telephone numbers will be available from 8 a.m. to 6 p.m. seven days a week until further notice, Sherman said.

After calling the hotline a 20 minute interview will be conducted by a FEMA service representative and an appointment will be set up for an inspector to visit the house or business. The inspectors will arrive in Lawrence County Monday and will begin working immediately, Sherman said. "In many cases people may not want to apply because they feel that someone else may be more worthy," he said. "They really should not prejudge themselves because they will not be taking money away from anyone else."

The five counties of Adams, Jackson, Lawrence, Pike and Scioto are eligible for assistance to residents and business owners.

For the state and affected local governments, federal funds will reimburse 75 percent of the costs for restoring damaged public facilities in the counties of Adams, Gallia, Jackson, Lawrence, Meigs, Pike, Scioto and Vinton. FEMA will reimburse the state and local government agencies for 75 percent of the total costs of equipment, contracts and personnel overtime related to emergency services. Related emergency protective measures such as sanding and salting, search and rescue, shelter operations and police and fire department response will also be eligible for reimbursement.

Low-interest loans from the U.S. Small Business Administration are also available to cover residential and business losses not fully compensated by insurance, Sherman said. "We actually got what we applied for," said Lawrence County EMA/911 Director Don Mootz. "It is important for people to call that number and hopefully we can get some of these damages and losses taken care of." Although the process began a little slow, the pace will pick up and the agency will have a more accurate representation of how many people will be applying for assistance within a week, he said.

APPENDIX 12 – Winter Storm History

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 Southeast Ohio	02/11/1994	0100	Ice Storm	N/A	0	26	5.0M	500K
2 OHZ023 - 033 - 039>041 - 048>050 - 057>059 - 066>069 - 074>076 - 083>088	03/08/1995	0600	Heavy Snow	N/A	0	0	50K	0
3 OHZ066>067 - 075>076 - 083>087	01/06/1996	06:00 PM	Heavy Snow	N/A	0	0	5K	0
4 OHZ083>087	01/11/1996	10:00 PM	Heavy Snow	N/A	0	0	0	0
5 OHZ086>087	02/02/1996	12:00 PM	Heavy Snow	N/A	0	0	0	0
6 OHZ075 - 083>087	02/03/1998	10:00 PM	Winter Storm	N/A	0	0	250K	0
7 OHZ066>067 - 075>076 - 083>087	02/12/1999	10:00 AM	Snow	N/A	0	0	0	0
8 OHZ066>067 - 075>076 - 083>087	01/20/2000	12:00 AM	Snow	N/A	0	0	0	0
9 OHZ083 - 086>087	01/29/2000	06:00 PM	Winter Storm	N/A	0	0	0	0
10 OHZ066>067 - 075>076 - 083>087	01/19/2001	10:00 AM	Snow	N/A	0	0	0	0
11 OHZ066>067 - 075>076 - 084>087	01/06/2002	07:00 AM	Snow	N/A	0	0	0	0
12 OHZ087	01/19/2002	05:00 AM	Heavy Snow	N/A	0	0	0	0
13 OHZ066>067 - 075>076 - 083>087	12/04/2002	07:00 PM	Snow	N/A	0	0	0	0
14 OHZ083 - 085>087	02/16/2003	02:00 AM	Ice Storm	N/A	0	0	6.3M	0
TOTALS:					0	26	11.555M	500K

Key:

Mag: Magnitude (knots)

PrD: Property Damage

Dth: Deaths

CrD: Crop Damage

Inj: Injury

APPENDIX 13 – Ohio Building Code Standards

The earthquake standards adopted by Lawrence County apply to all buildings except the following:

1. Single-family, two-family and three-family dwelling houses which are not constructed of industrialized units, except for the energy conservation provisions required in “Chapter 13, Energy Conservation” of the OBC;
2. Buildings owned by and used for a function of the United States government;
3. Existing buildings where their location, parts, equipment and other items do not constitute a serious hazard, unless otherwise regulated by the provisions of “Chapter 34, Existing Structures” of the OBC;
4. Buildings constructed in accordance with plans which have been approved prior to the effective date of the OBC;
5. Buildings or structures which are incident to the use for agricultural purposes of the land on which said buildings or structures are located, provided such buildings or structures are not used in the business of retail trade. For the purposes of this section, a building or structure is not considered used in the business of retail trade if fifty percent or more of the gross income received from sales of products in the building or structure by the owner or operator is from sales of products produced or raised in a normal crop year on farms owned or operated by the seller;
6. Agricultural labor camps;
7. Single-family, two-family and three-family detached dwelling houses for which applications have been submitted to the Ohio Director of Human Services for the purposes of operating type A family day-care homes;
8. Buildings or structures which are designed, constructed and maintained in accordance with Federal standards and regulations and are used primarily for Federal and State military purposes where the U.S. Secretary of Defense has:
 - a. Acquired, by purchase, lease or transfer, and constructs, expands, rehabilitates or corrects and equips, such buildings or structures as he or she determines to be necessary to carry out the purposes of Chapter 133 of the U.S.C.;
 - b. Contributed to the State of Ohio such amounts for the acquisition, construction, expansion, rehabilitation and conversion by the State of Ohio of such additional buildings or structures as he or she determines to be required because of the failure of existing facilities to meet the purposes of Chapter 133 of the U.S.C.;
 - c. Contributed to the State of Ohio such amounts for the construction, alteration or rehabilitation of arms storage rooms as he or she determines to be required to meet a change in U.S. Department of Defense standards relating to the safekeeping of arms.

APPENDIX 14 – Action Plan for Lawrence County Drought 1999

The county of Lawrence, Ohio should consider adjuncts to any plans, procedures, policies, and laws related to drought that local communities have developed:

Checklist Items	Local Area / Name	Date Completed
1. Designates Grant Writer to oversee/complete proper documentation.	_____	_____
2. Enactment of ordinances to assure equitable water distribution.	(Attach copies of ordinances)	_____
3. Establishment of a Water Management Task Force of 7-15 members made up of representatives of major water uses, government executives, emergency management, health, County Engineer, Economic Development, Planning Commission, fire and police representatives, water plant and district personnel, the media and related service representatives. The Water Management Task Force will determine and implement drought-related activities.	_____	_____
4. Prepare drought appendix to the local Emergency Operations Plan. (See State of Ohio Drought Response Plan, dated 1/94, as a guide for local drought appendix development. Also refer to Suggested Response Water Use-Class.)	_____	_____
5. Establish local drought emergency public information and education programs.	_____	_____
6. Maintain communications / coordination with appropriate state-level (Ohio EMA, Ohio EPA, Ohio Department of Health, etc) Personnel through drought- Emergency.	_____	_____

APPENDIX 15 – Severe Storm History

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 LAWRENCE	05/26/1968	1430	Tstm Wind	0 kts.	0	0	0	0
2 LAWRENCE	07/02/1970	1640	Tstm Wind	0 kts.	0	0	0	0
3 LAWRENCE	06/12/1973	1430	Tstm Wind	0 kts.	0	0	0	0
4 LAWRENCE	07/15/1976	1740	Tstm Wind	0 kts.	0	0	0	0
5 LAWRENCE	07/09/1980	2000	Tstm Wind	0 kts.	0	0	0	0
6 LAWRENCE	07/12/1980	1715	Tstm Wind	0 kts.	0	0	0	0
7 LAWRENCE	07/17/1983	1530	Tstm Wind	0 kts.	0	0	0	0
8 LAWRENCE	07/23/1983	1740	Tstm Wind	0 kts.	0	0	0	0
9 LAWRENCE	07/23/1983	1740	Tstm Wind	0 kts.	0	0	0	0
10 LAWRENCE	08/09/1983	1334	Tstm Wind	0 kts.	0	0	0	0
11 LAWRENCE	08/09/1983	1425	Tstm Wind	0 kts.	0	0	0	0
12 LAWRENCE	04/27/1987	1825	Tstm Wind	0 kts.	0	0	0	0
13 LAWRENCE	04/25/1989	2200	Tstm Wind	0 kts.	0	0	0	0
14 LAWRENCE	08/05/1989	1850	Tstm Wind	0 kts.	0	0	0	0
15 LAWRENCE	04/09/1991	1510	Tstm Wind	0 kts.	0	0	0	0
16 LAWRENCE	04/09/1991	1535	Tstm Wind	0 kts.	0	0	0	0
17 LAWRENCE	07/23/1991	1640	Tstm Wind	0 kts.	0	0	0	0
18 LAWRENCE	07/23/1991	1705	Tstm Wind	0 kts.	0	0	0	0
19 LAWRENCE	08/08/1991	1730	Tstm Wind	0 kts.	0	0	0	0
20 LAWRENCE	07/10/1992	2045	Tstm Wind	0 kts.	0	0	0	0
21 LAWRENCE	08/27/1992	1210	Tstm Wind	0 kts.	0	0	0	0
22 Ironton	02/21/1993	1745	Thunderstorm Winds	N/A	0	0	50K	0
23 Coal Grove	04/15/1993	2015	High Winds	0 kts.	0	2	50K	0
24 Wheelersburg	05/18/1993	1505	High Winds	0 kts.	0	0	5K	0
25 Southern Half	05/18/1993	1530	High Winds	0 kts.	0	0	5K	0
26 Ohio Furnace	08/24/1993	1640	Thunderstorm Winds	N/A	0	0	50K	0
27 Southern Half	03/18/1994	1155	High Winds	0 kts.	0	2	500K	0
28 South Half	04/15/1994	1305	Thunderstorm Winds	N/A	0	0	50K	50K
29 Countywide	06/20/1994	1930	Thunderstorm Winds	N/A	0	0	5K	0
30 Ironton	05/10/1995	1815	Thunderstorm Winds	N/A	0	0	10K	0

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
31 Ironton	06/08/1995	1645	Thunderstorm Winds	N/A	0	0	20K	0
32 Ironton	06/10/1995	1315	Thunderstorm Winds	N/A	0	0	45K	0
33 Ironton	07/25/1995	1545	Thunderstorm Winds	N/A	0	0	2K	0
34 Parts Of West Central	11/11/1995	1015	High Winds	0 kts.	0	0	50K	0
35 Ironton	04/23/1996	12:15 PM	Tstm Wind	0 kts.	0	0	5K	0
36 Chesapeake	04/23/1996	12:25 PM	Tstm Wind	0 kts.	0	0	5K	0
37 Ironton	06/06/1996	06:35 PM	Tstm Wind	0 kts.	0	0	200K	0
38 Pedro	07/02/1997	08:26 PM	Tstm Wind	0 kts.	0	0	2K	0
39 Ironton	07/28/1997	04:30 PM	Tstm Wind	0 kts.	0	0	3K	0
40 Proctorville	08/17/1997	02:10 PM	Tstm Wind	0 kts.	0	0	20K	0
41 Proctorville	08/17/1997	03:48 PM	Tstm Wind	0 kts.	0	0	2K	0
42 Coal Grove	02/17/1998	01:33 PM	Tstm Wind	0 kts.	0	0	2K	0
43 Getaway	06/10/1998	01:30 AM	Tstm Wind	0 kts.	0	0	2K	0
44 OHZ085>087	12/21/1998	07:00 PM	Wind	N/A	0	0	0	0
45 OHZ066>067 - 075>076 - 084>087	04/16/1999	01:00 PM	Wind	N/A	0	0	0	0
46 Kitts Hill	10/13/1999	05:15 PM	Tstm Wind	0 kts.	0	0	5K	0
47 OHZ066>067 - 075>076 - 083>087	01/10/2000	12:00 PM	Wind	N/A	0	0	0	0
48 OHZ066>067 - 075>076 - 083>087	01/11/2000	03:00 AM	Wind	N/A	0	0	0	0
49 Coal Grove	04/20/2000	08:30 PM	Tstm Wind	0 kts.	0	0	5K	0
50 Platform	08/09/2000	06:35 PM	Tstm Wind	0 kts.	0	0	75K	0
51 OHZ066>067 - 075>076 - 083>087	11/09/2000	05:30 PM	Wind	N/A	0	0	50K	0
52 OHZ066>067 - 075 - 083>087	12/11/2000	10:30 PM	Wind	N/A	0	0	0	0
53 OHZ066>067 - 075>076 - 083>087	02/09/2001	07:00 PM	Wind	N/A	0	0	0	0
54 OHZ066>067 - 075>076 - 083>087	02/25/2001	10:00 AM	Wind	N/A	0	0	0	0
55 OHZ066>067 - 075>076 - 083>087	03/13/2001	04:00 PM	Wind	N/A	0	0	0	0
56 OHZ066>067 - 075>076 - 083>087	12/14/2001	12:00 PM	Wind	N/A	0	0	65K	0

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
57 OHZ066>067 - 075>076 - 083>087	03/09/2002	04:45 PM	High Wind	0 kts.	0	0	75K	0
58 Ironton	11/10/2002	08:33 PM	Tstm Wind	0 kts.	0	0	1K	0
59 Coal Grove	05/10/2003	05:25 PM	Tstm Wind	50 kts.	0	0	10K	0
60 Ironton	05/10/2003	05:45 PM	Tstm Wind	50 kts.	0	0	0	0
TOTALS:					0	4	1.369M	50K

Key:

Mag: Magnitude (knots)
Dth: Deaths
Inj: Injuries
PrD: Property damage
CrD: Crop damage

APPENDIX 16 – Hail Storm History

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 LAWRENCE	06/20/1975	1350	Hail	1.75 in.	0	0	0	0
2 LAWRENCE	08/13/1976	1430	Hail	1.75 in.	0	0	0	0
3 LAWRENCE	06/02/1980	1930	Hail	2.00 in.	0	0	0	0
4 LAWRENCE	06/09/1982	2020	Hail	1.75 in.	0	0	0	0
5 LAWRENCE	07/17/1983	1530	Hail	1.00 in.	0	0	0	0
6 LAWRENCE	07/17/1983	1545	Hail	1.00 in.	0	0	0	0
7 LAWRENCE	07/10/1985	1130	Hail	0.75 in.	0	0	0	0
8 LAWRENCE	06/27/1989	1810	Hail	1.00 in.	0	0	0	0
9 LAWRENCE	04/09/1991	1535	Hail	0.75 in.	0	0	0	0
10 Coal Grove (3 N)	05/12/1993	1315	Hail	0.75 in.	0	0	1K	0
11 LAWRENCE	04/15/1994		Hail	1.00 in.	0	0	0	0
12 Pedro	06/21/1994	1740	Hail	1.00 in.	0	0	0	0
13 OHZ066 - 067 - 075 - 076 - 083 - 085 - 086 - 087	08/01/1995	1637	Hail 0.75	0.00 in.	0	0	0	0
14 Lecta	06/09/1996	04:30 PM	Hail	0.75 in.	0	0	0	0
15 Aid	06/02/1997	06:05 PM	Hail	0.75 in.	0	0	0	0
16 South Pt	01/08/1998	10:00 PM	Hail	1.00 in.	0	0	5K	0
17 Willow Wood	01/08/1998	10:05 PM	Hail	1.00 in.	0	0	0	0
18 Pedro	05/24/1998	04:48 PM	Hail	1.50 in.	0	0	40K	0
19 Ironton	05/24/1998	05:38 PM	Hail	1.00 in.	0	0	50K	0
20 Waterloo	06/16/1998	01:00 PM	Hail	1.00 in.	0	0	0	0
21 Ironton	06/16/1998	12:35 PM	Hail	1.75 in.	0	0	250K	0
22 Ironton	06/16/1998	12:55 PM	Hail	0.88 in.	0	0	25K	0
23 Waterloo	07/02/1998	03:40 PM	Hail	1.00 in.	0	0	0	0
24 Arabia	07/02/1998	04:05 PM	Hail	1.75 in.	0	0	10K	0
25 Pedro	07/28/2000	01:00 PM	Hail	1.00 in.	0	0	0	0
26 Coal Grove	11/10/2002	09:50 PM	Hail	0.75 in.	0	0	0	0
27 Willow Wood	11/10/2002	10:00 PM	Hail	0.75 in.	0	0	0	0
28 Ironton	11/10/2002	10:05 PM	Hail	0.75 in.	0	0	0	0
29 Chesapeake	05/01/2003	03:19 PM	Hail	1.75 in.	0	0	5K	0
TOTALS:					0	0	386K	0

Key:

Mag: Magnitude (knots)
Dth: Deaths

Inj: Injuries
CrD: Crop Damage

PrD: Property Damage

APPENDIX 17 – Mitigation Goals by Community

*Note: The pink items are the item(s) that the community has set as priority for goal implementation.

Village of Athalia

Lawrence County All Natural Hazard Mitigation Plan - Village of Athalia Priorities	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Flooding								
Mobile homes are not anchored even though there are codes requiring this. Adopt & enforce anchoring criteria for mobile homes.	4	4	4	4	4	4	4	28
Residents may not have the funds to properly anchor their mobile homes. Seek funding for anchoring of mobile homes.	4	4	4	4	4	4	4	28
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.	4	4	4	3	4	4	4	27
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.	3	4	4	4	3	3	4	25
Winter Storms								
Additional equipment is needed to respond to winter storm events. Identify equipment needs.	4	3	4	4	4	4	3	26
Tornadoes								
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	3	3	4	4	4	4	3	25
Severe Storms								
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	4	4	4	4	4	4	4	28

Village of Chesapeake

Lawrence County All Natural Hazard Mitigation Plan -Village of Chesapeake Priorities	Evaluation Criteria							
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Reduce Risk	Socially Acceptable	Total
Flooding								
People are often not aware of the damage that floods can do. Educate public about flood damage prevention.	4	4	4	4	4	4	4	28
Mobile homes are not anchored even though there are codes requiring this. Adopt & enforce anchoring criteria for mobile homes.	4	4	4	4	4	4	4	28
There are storm water drainage problems throughout the county, with numerous causes. Inventory storm water drainage problem areas.	4	4	4	4	4	4	4	28
Increased building in the county increases storm water drainage. Storm water drainage regulations would help address this additional run-off and flooding problems that are prone to develop. Develop county-wide storm water drainage regulations	4	4	4	4	4	4	4	28
There are critical facilities (such as police, fire departments, etc.) in the floodplain, but a lack of awareness that these facilities would be impacted by a flood. Identify critical facilities in the floodplain.	4	4	4	4	4	4	4	28
Residents may not have the funds to properly anchor their mobile homes. Seek funding for anchoring of mobile homes.	3	4	4	4	4	4	4	27
Relocation or flood protection of critical facilities is very expensive. Seek funding for relocation/flood protection of critical facilities.	3	4	4	4	4	4	4	27
Critical facilities should have an extra level of protection. Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level.	4	4	4	3	4	4	4	27
Zoning overlays would ensure that people are aware of the floodplain area. A zoning permit would trigger a floodplain review and permit. Investigate developing zoning regulations in jurisdictions without zoning.	4	4	4	4	4	3	3	26
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.	3	4	4	4	4	3	4	26
Watercourses are often altered without the proper permits and review of impacts. Educate the public regarding regulations pertaining to watercourse alterations.	2	4	4	4	4	4	4	26
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.	4	4	4	4	1	4	4	25
Building in the floodplain requires flood resistant materials and proper construction methods. This is not often possible due to a lack of a local building code and inspection system. Investigate developing building codes and inspection system in jurisdictions without building codes.	4	4	4	4	4	1	3	24
People are not aware of impending flood situations. Seek funding for weather radios.	3	4	4	3	3	3	3	23
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	3	4	4	4	2	3	3	23

Village of Coal Grove

Lawrence County All Natural Hazard Mitigation Plan - Village of Coal Grove Priorities	Evaluation Criteria							
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Flooding								
Combined sanitary sewers often fill with flood waters, which then back up into structures. Seek funding for back-flow preventers in areas of combined sanitary sewers.	5	5	5	5	5	5	5	35
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	5	5	5	5	5	5	5	35
Winter Storms								
The public is not aware of how to properly respond to winter storms. Educate public about winter storm risks and damage prevention.	5	5	5	5	5	5	5	35
Dams								
There is a lack of maintenance of the dams. Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.	5	5	5	5	5	5	5	35
Tornadoes								
The public is not aware of what to do in a tornado event. Educate public about protection during a tornado.	5	5	5	5	5	5	5	35
Earthquakes								
Utility lines are often damaged during earthquakes, increasing risks to people and structures. Identify areas where additional utility cut-offs are needed to isolate utility systems.	5	5	5	5	5	5	5	35
The public is not aware of the risks from earthquakes. Educate public about earthquake potential.	5	5	5	5	5	5	5	35
Drought/Wildfire								
The public is not aware of times of year when there is an increased fire risk. And how to lessen damages around their homes. Educate public about fire risks and damage prevention.	5	5	5	5	5	5	5	35
Landslide/Subsidence								
Additional investigation and mapping is needed to determine where old mines are. Seek funding for mapping and subsurface investigations.	5	5	5	5	5	5	5	35
Severe Storms								
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	5	5	5	5	5	5	5	35
The public is not aware of the risks from severe storms. Educate public about severe weather risks and damage prevention.	5	5	5	5	5	5	5	35

Village of Hanging Rock

Lawrence County All Natural Hazard Mitigation Plan, Village of Hanging Rock Priorities	Evaluation Criteria							
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Flooding								
The floodwall pump stations control systems are failing and replacement parts are not available. Seek emergency funding to replace floodwall pump station control system.	5	5	5	5	5	5	5	35
Building in the floodplain requires flood resistant materials and proper construction methods. This is not often possible due to a lack of a local building code and inspection system. Investigate developing building codes and inspection system in jurisdictions without building codes.	5	5	5	5	5	5	5	35
Zoning overlays would ensure that people are aware of the floodplain area. A zoning permit would trigger a floodplain review and permit. Investigate developing zoning regulations in jurisdictions without zoning.	5	5	5	5	5	5	5	35
Mobile homes are not anchored even though there are codes requiring this. Adopt & enforce anchoring criteria for mobile homes.	5	5	5	5	5	5	5	35
There are storm water drainage problems throughout the county, with numerous causes. Inventory storm water drainage problem areas.	5	5	5	5	5	5	5	35
There are buildings (commercial and residential) that are prone to flooding. Identify priority areas for elevation, acquisition or retrofitting of buildings prone to flooding.	5	5	5	5	5	5	5	35
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.	5	5	5	5	5	5	5	35
There are areas in the county that flood, but are not identified on flood maps or are mapped only with approximate flood elevations. Identify priority areas for mapping of unidentified floodplains or those where detailed flood elevations are needed.	5	5	5	5	5	5	5	35
Flood mapping is very expensive and the county does not have adequate funding to address the needs. Seek funding for flood mapping.	5	5	5	5	5	5	5	35
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	5	5	5	5	5	5	5	35
Winter Storms								
Additional equipment is needed to respond to winter storm events. Identify equipment needs.	5	5	5	5	5	5	5	35
The county does not have adequate funding for snow removal equipment. Seek funding for equipment.	5	5	5	5	5	5	5	35
Tornadoes								
Mobile homes are more prone to wind damage. Adopt & enforce anchoring criteria for mobile homes.	5	5	5	5	5	5	5	35
Anchoring of mobile homes is costly to the owner and the county does not have funds to address this. Seek funding for anchoring of mobile homes.	5	5	5	5	5	5	5	35
Propane tanks can become airborne during a tornado, causing an additional explosion hazard. Adopt & enforce anchoring criteria for propane tanks.	5	5	5	5	5	5	5	35
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	5	5	5	5	5	5	5	35
There are gaps in the tornado warning system or areas that need improvement. Seek funding to improve the tornado warning systems.	5	5	5	5	5	5	5	35
Drought/Wildfire								
There is inadequate fire response equipment. Identify areas where fire fighting equipment is needed.	5	5	5	5	5	5	5	35
The county does not have adequate funding for additional fire protection and response equipment. Seek funding for equipment.	5	5	5	5	5	5	5	35
A local fire department may not be able to handle the fire alone. Develop/improve cooperative response agreements.	5	5	5	5	5	5	5	35
Landslide/Subsidence								
Logging often increases the risk of landslides. Coordinate with the Soil Conservation Service to improve logging practices.	5	5	5	5	5	5	5	35
There is not enough equipment and funding to repair the landslide areas. Seek funding to obtain equipment and to repair problem areas.	5	5	5	5	5	5	5	35

City of Ironton

Lawrence County All Natural Hazard Mitigation Plan -City of Ironton Priorities	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Flooding								
The floodwall pump stations control systems are failing and replacement parts are not available. Seek emergency funding to replace floodwall pump station control system.	5	5	5	5	5	5	5	35
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.	5	5	5	5	5	5	5	35
Combined sanitary sewers often fill with flood waters, which then back up into structures. Seek funding for back-flow preventers in areas of combined sanitary sewers.	3	4	5	5	5	5	5	32
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	2	5	5	5	5	5	5	32
Winter Storms								
Additional equipment is needed to respond to winter storm events. Identify equipment needs.	5	5	5	5	5	5	5	35
Tornadoes								
The public is not aware of what to do in a tornado event. Educate public about protection during a tornado.	4	5	5	5	5	5	5	34
Trees are often destroyed in high winds, taking down power and communication lines. Encourage maintenance of trees in right-of-way areas.	2	5	3	5	5	5	5	30
Earthquakes								
The public is not aware of the risks from earthquakes. Educate public about earthquake potential.	5	5	5	5	5	3	5	33
Drought/Wildfire								
The county does not have adequate funding to remove the woody debris from the Feb. 2003 ice storm. Seek funding for removal of wood debris.	3	5	4	5	4	5	5	31
Additional fire break lines are needed. Identify areas where fire break lines are needed.	3	5	4	5	4	5	5	31
Landslide/Subsidence								
The public is not aware of where the hazard areas are. Educate public of locations of hazard areas.	5	3	5	5	5	5	5	33
Severe Storms								
People are not always around media to alert them to severe weather. Develop an audible alert system.	2	5	3	5	5	5	5	30

Village of Proctorville

Lawrence County All Natural Hazard Mitigation Plan - Village of Proctorville Priorities	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	Total
Tornadoes								
There are gaps in the tornado warning system or areas that need improvement. Seek funding to improve the tornado warning systems.	5							5
There is a lack of adequate tornado shelters in the county. Identify areas where tornado shelters are needed.	4							4

*Note: This matrix was not filled out according to the directions provided, but has been included in the report.

Village of South Point

Lawrence County All Natural Hazard Mitigation Plan - Village of Southpoint Priorities								Total
	Cost Effective	Technically Feasible	Environmentally Sound	Socially Equitable	Meets Federal, State and Local Regulations	Activities Reduce Risk	Socially Acceptable	
Flooding								
Critical facilities should have an extra level of protection. Require new/improved critical facilities to be elevated/flood protected to the 500-year flood level.	4	4	4	4	4	3	4	27
Propane tanks often float away during a flood, causing potential explosion hazards. Adopt & enforce anchoring criteria for propane tanks.	4	4	4	3	4	4	3	26
Combined sanitary sewers often fill with flood waters, which then back up into structures. Seek funding for back-flow preventers in areas of combined sanitary sewers.	4	4	4	3	4	4	3	26
Communication systems often fail during a flood. Develop back-up plans in case of communication failures.	3	4	4	4	3	3	4	25
There are large amounts of debris in streams blocking the flow of flood waters. Seek funding for debris removal in streams.	1	4	4	4	4	4	4	25
The county does not have adequate funding to reduce structural losses to buildings in the floodplain. Seek funding for elevation, acquisition or retrofitting of buildings prone to flooding.	1	3	4	4	4	4	4	24
Zoning overlays would ensure that people are aware of the floodplain area. A zoning permit would trigger a floodplain review and permit. Investigate developing zoning regulations in jurisdictions without zoning.	4	3	4	3	3	4	2	23
Flood mapping is very expensive and the county does not have adequate funding to address the needs. Seek funding for flood mapping.	3	3	3	4	4	3	3	23
There are critical facilities (such as police, fire departments, etc.) in the floodplain, but a lack of awareness that these facilities would be impacted by a flood. Identify critical facilities in the floodplain.	3	3	4	4	3	3	3	23
Increased building in the county increases storm water drainage. Storm water drainage regulations would help address this additional run-off and flooding problems that are prone to develop. Develop county-wide storm water drainage regulations	1	3	3	4	3	3	4	21
There are storm water drainage problems throughout the county, with numerous causes. Inventory storm water drainage problem areas.	1	2	3	3	4	3	3	19
Winter Storms								
Additional equipment is needed to respond to winter storm events. Identify equipment needs.	2	4	4	4	4	3	4	25
The county does not have adequate funding for snow removal equipment. Seek funding for equipment.	2	4	4	4	4	3	4	25
Dams								
There are dams that have been constructed without review or state oversight. Identify dams throughout county to determine if they fall under state regulation.	2	4	3	4	4	3	3	23
There is a lack of maintenance of the dams. Coordinate with ODNR Division of Water regarding lack of maintenance and inspection of dams.	2	4	3	4	4	3	3	23
Tornadoes								
The public is not aware of dangerous weather situations. Seek funding for weather radios.	3	4	4	4	4	4	3	26

APPENDIX 18 – PUBLIC HEARING FOR FINAL PLAN - ADVERTISEMENT

State news

Man says he did not kill former Ohio dancer

NEW YORK (AP) — A personal trainer and aspiring rock musician, on trial for the throat-slash slaying of a dancer from Columbus testified Thursday that he loved the young woman and did not kill her.

Paul Cortez said he never hurt Catherine Woods physically and never wanted to. He also said that, while he had hoped they would rekindle what he once thought was mutual love, he was seeing other women by the time Woods was killed.

Cortez, 25, is on trial in Manhattan's state Supreme Court charged with second-degree murder in the Nov. 27, 2005, death of Woods, a 21-year-old classically trained dancer who was stripping to pay her bills. He faces 25 years to life in prison if convicted.

Woods' parents, Jon Woods, director of the Ohio State University marching band, and his wife, Donna Woods, were in court to hear Cortez' testimony.

The testimony eventually focused on his relationship with Woods, but not as quickly as Justice Carol Berkman wanted. She scolded Cortez's lawyer several times for asking questions the judge said were unrelated to the case.

The defendant said he and Woods met in August 2004 in the gym where he was a personal trainer. He said they started dating immediately but their first kiss was in

Community Calendar

Today

▶ South Point Board of Education will have a special meeting at 2:15 p.m. in the middle school library. The purpose of the meeting is to conduct interviews and consider employment of personnel.

▶ Waterloo #447OES will have its stated meeting at 7:30 p.m. Presiding will be Jayme Wall, worthy matron and Eric Wall, worthy patron.

Saturday

▶ Village of Hanging Rock council will have a special meeting on adopting a hazardous mitigation plan at 9:30 a.m. at the village townhouse.

▶ Memorial United Methodist Church in Coal Grove will have a health fair 9 a.m.-12 p.m. at the church. Blood pressure, diabetes, cholesterol and anemia screenings will be available.

▶ The Fayette Township trustees will have its regular meeting at 7 p.m. at the Burlington Fire Station.

▶ South Point Masonic Lodge #497 will have a special breakfast meeting in the FC degree at 8 a.m. WM Jonathan B. Thacker is the presiding officer.

▶ A benefit spaghetti dinner that was to have been Thursday has been rescheduled for 4-6 p.m. this evening. The proceeds will benefit the Jordan Rigsby family, whose home was destroyed in an explosion last year.

Monday

▶ Anyone who graduated from South Point High School in the 1960s is invited to attend a reunion planning meeting at 7 p.m. at the South Point branch of the Briggs Lawrence County Library. For more information Jim Moore at (740) 377-4238.

▶ Dawson-Bryant middle and high schools will have parent teacher conferences from 4-7 p.m. All parents are urged to

Street in Ironton.

▶ Ironton High School Class of 1963 will meet at Giovanni's pizza in Westwood, Ky.

▶ Fairland Board of Education will meet at 5:30 p.m. at the high school.

▶ The Ironton Port Authority will have a public meeting on the River Valley property at 6 p.m. in the meeting room on the second floor of the Ironton City Center. The IPA will have a board meeting at 7:30 p.m.

▶ South Point Masonic Lodge #497 will have a special meeting in the FC degree on 7 p.m. WM Jonathan B. Thacker is the presiding officer.

▶ Ironton and St. Joseph Classes of 1977 will have a reunion planning meeting at 7:30 p.m. at the Knights of Columbus.

Tuesday

▶ There will be a public hearing for the county's pre-disaster mitigation plan at 8:30 a.m. in the county commissioners chambers.

▶ The Dawson-Bryant High School prom and yearbook committees will be hosting a candlelight Valentine's dinner from 5-8 p.m. at the high school. Attendees can choose either marinated chicken or roast beef with seasoned mashed potatoes, California blend vegetables and various desserts. Tickets are \$5 for adults and \$3 for children. You can buy tickets at the door or order them by calling (740) 532-6345 ext. 2240.

▶ Dawson-Bryant Elementary will have an achievement test informational meeting for parents of all children in grades 2-5 at 6 p.m. in the school library.

▶ Lawco Lake monthly meeting will be at 7 p.m. at the Ironton Fire Department

▶ There will be a public hearing for the pre-disaster mitigation plan for Lawrence County will be at 8:30 a.m. in the

APPENDIX 19 – ADOPTION LEGISLATION BY COMMUNITY

Resolution No. *050603*

Adopting the Pre Hazard Mitigation Plan for Lawrence County

Whereas: the Village of Athalia has experienced sever damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornadoes on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Fountain-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;

Whereas: the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Athalia;

Whereas: a public meeting was held to review the Plan as required by law;

Now Therefore Be It Resolved: by the Village of Athalia

Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for for the Village of Athalia.

Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of Athalia will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of implementation of the Plan.

Passed this 6th day of FEBRUARY, 2007

John D. Finley
Council Chairperson

James Chapman
Mayor

Approved Vetoed Date: Feb. 6, 2007

Attested and Filed in my office the 6th day of February, 2007.

Edna D. Breen
Clerk

Resolution No. 2007-03

Adopting the Pre Hazard Mitigation Plan for Lawrence County

Whereas: the Village of Chesapeake has experienced severe damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornados on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Innton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;

Whereas: the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Chesapeake;

Whereas: a public meeting was had to review the Plan as required by law,

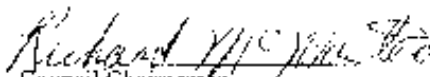
Now Therefore Be It Resolved: by the Village of Chesapeake

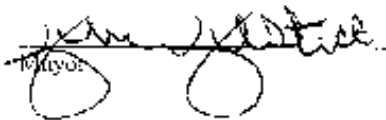
Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for the Village of Chesapeake.

Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of Chesapeake will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of implementation of the Plan.

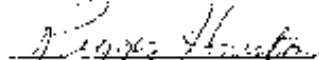
Passed this 5th day of FEBRUARY, 2007


Richard McMillan
Council Chairperson


Mayor

Approved / Vetted Date: 02/05/07

Attested and Filed in my office the 5th day of February, 2007.


Clerk

Resolution No. 07-4

Adopting the Pre Hazard Mitigation Plan for Lawrence County

Whereas: the Village of Proctorville has experienced sever damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornados on may occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Trenton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;

Whereas: the Plan recommends may hazard mitigation actions that will protect the people and property affected by the natural hazards that face Proctorville;

Whereas: a public meeting was held to review the Plan as required by law;

Now Therefore Be It Resolved: by the Village of Proctorville

Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for for the Village of Proctorville

Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of Proctorville will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of implementation of the Plan.

Passed this 23rd day of FEBRUARY, 2007

Will West
Council Chairperson

Jim S. Buel
Mayor

Approved Veloc Date: 2/23/07

Attested and Filed in my office the 23rd day of February, 2007.
Doris J. [Signature]
Clerk

Resolution No. 2007-04

Adopting the Pre Hazard Mitigation Plan for Lawrence County

Whereas: the Village of Hanging Rock has experienced severe damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornadoes on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Inorton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;

Whereas: the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Hanging Rock;

Whereas: a public meeting was held to review the Plan as required by law;


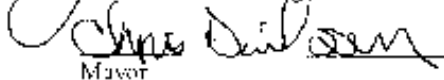
Now Therefore Be It Resolved: by the Village of Hanging Rock

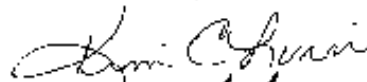

Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for the Village of Hanging Rock.

Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of Hanging Rock will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of implementation of the Plan.

Passed this 10th day of FEBRUARY, 2007


Jeannette L. Waginger
Council Chairperson

Chris Dill
Mayor


Kevin A. Brown

Susan Satony
Approved / Vetoed Date 2/10/07

Attested and Filed in my office the 10th day of February, 2007.


Carole Hildner
Clerk

Resolution No. _____

Adopting the Pre Hazard Mitigation Plan for Lawrence County

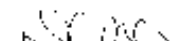
- Whereas: Lawrence County has experienced sever damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornados on may occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;
- Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Ironton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;
- Whereas: the Plan recommends may hazard mitigation actions that will protect the people and property affected by the natural hazards that face Lawrence County;
- Whereas: a public meeting was held to review the Plan as required by law;
- Now Therefore Be It Resolved: by the Lawrence County Commissioners

Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for for Lawrence County.

Section 2: The respective county officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The respective county officials shall provide the necessary documentation shall be submitted to the Commissioners, on an annual basis as to the progress and status of implementation of the Plan.

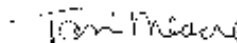
Passed this 8th day of FEBRUARY, 2007



Commission President

Approved / Vetoed Date: 02/08/07

Attested and Filed in my office the 8th day of February, 2007.

 Clerk

Resolution No. 07-16

Adopting the Pre Hazard Mitigation Plan for Lawrence County

Whereas, the City of Trenton has experienced severe damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornadoes on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas, a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Trenton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities;

Whereas, the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Trenton;

Whereas, a public meeting was held to review the Plan as required by law;

Now Therefore Be It Resolved: by the City of Trenton

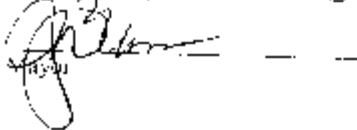
Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for the City of Trenton.

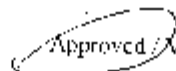
Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The City of Trenton will provide the needed documentation to the Mayor and/or designate on an annual basis as to the progress and status of implementation of the Plan.

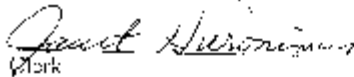
Passed this 22nd day of FEBRUARY, 2007


Council Chairperson


Mayor

Approved / Voted:  Date: 2/22/07

Attested and Filed in my office the 22nd day of February, 2007.


Clerk

Resolution 07-01

Adopting the Hazard Mitigation Plan for Lawrence County

Whereas: the Village of South Point has experienced severe damage from flooding, numerous sinkholes, wildfires, landslides and tornadoes on major sections of its geographic territory, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

Whereas: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Joint and Lawrence County Area CMO, Law, Lawrence County and the surrounding communities;

Whereas: the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face South Point;

Whereas: a public meeting was held to review the Plan as required by law;

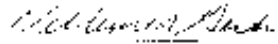
Now Therefore Be It Resolved, by the Council of the Village of South Point

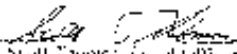
Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for the Village of South Point

Section 2: The respective town or districts identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of South Point will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of the implementation of the Plan.

Adopted This 6th Day of February, 2007


William A. Simser, Mayor

Attest: 
Scott Thomas, Fiscal Officer

RESOLUTION 11-07

Adopting the Pre Hazard Mitigation Plan for Lawrence County

WHEREAS: the Village of Coal Grove has experienced sever damage from flooding, hurricanes, earthquakes, wildfires, landslides and tornados on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety and,

WHEREAS: a Hazard Mitigation Plan (the Plan) has been developed after more than two years of research and work by the Ironton-Lawrence County Area CAO, Inc., Lawrence County and the surrounding communities and,

WHEREAS: the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Coal Grove and,

WHEREAS: a public meeting was held to review the Plan as required by law;

NOW, THEREFORE, BE IT RESOLVED: by the Village Council of Coal Grove, Ohio the following:

Section 1: The Hazard Mitigation Plan is hereby adopted as an official plan for the Village of Coal Grove.

Section 2: The respective town officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them.

Section 3: The Village of Coal Grove will provide the needed documentation to the Mayor and/or designees on an annual basis as to the progress and status of implementation of the Plan.

Passed this 27th day of FEBRUARY, 2007

ATTEST:

Lesley M. Daniel
MAYOR

ATTEST:

Debra J. Fields
CLERK

The preceding is an authorized copy of Resolution 11-07 passed the 27th day of February, 2007 by the Council of the Village of Coal Grove, Ohio.

ATTEST:

Debra J. Fields, Chief Treasurer

ATTACHMENT 1: City of Ironton, Flood Damage Reduction Plan Ordinance

Chapter 1456

Chapter 1456: Special Purpose Flood Damage Reduction

1456.00 General Provisions

- a Statutory Authorization City of Ironton**
- b Findings of Fact**
- c Statement of Purpose**
- d Methods of Reducing Flood Loss**
- e Lands to Which These Regulations Apply**
- f Basis of Establishing the Areas of Special Flood Hazard**
- g Abrogation and Greater Restrictions**
- h Interpretation**
- i Warning and Disclaimer of Liability**
- j Severability**

1456.01 Definitions

1456.02 Administration

- a Designation of the Floodplain Administrator**
- b Duties and Responsibilities of the Floodplain Administrator**
- c Floodplain Development Permits**
- d Application Required**
- e Review and Approval of a Floodplain Development Permit Application**
- f Inspections**
- g Post-Construction Certifications Required**
- h Revoking a Floodplain Development Permit**

- i Exemption from Filing a Development Permit**
- j Map Maintenance Activities**
- k Data Use and Flood Map Interpretation**
- l Substantial Damage Determinations**

1456.03 Use and Development Standards for Flood Hazard Reduction

- a Use Regulations**
- b Water and Wastewater Systems**
- c Subdivisions and Large Developments**
- d Residential Structures**
- e Nonresidential Structures**
- f Accessory Structures**
- g Recreational Vehicles**
- h Above Ground Gas or Liquid Storage Tanks**
- i Assurance of Flood Carrying Capacity**

1456.04 Appeals and Variances

- a Appeals Board Established**
- b Powers and Duties**
- c Appeals**
- d Variances**
- c Appeals**
- d Variances**
- e Procedure at Hearing**
- f Appeal to the Court**

1456.90 Enforcement

- a Compliance Required**
- b Notice of Violation**
- c Violations and Penalties**

1456.99 Adoption

1456.00: GENERAL PROVISIONS

(a) Statutory Authorization City of Ironton

ARTICLE XVIII, Section 3, of the Ohio Constitution grants municipalities the legal authority to adopt land use and control measures for promoting the health, safety, and general welfare of its citizens. Therefore, the Council of City of Ironton, State of Ohio, does ordain as follows:

(b) Findings of Fact

The City of Ironton has special flood hazard areas that are subject to periodic inundation which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. Additionally, structures that are inadequately elevated, floodproofed, or otherwise protected from flood damage also contribute to the flood loss. In order to minimize the threat of such damages and to achieve the purposes hereinafter set forth, these regulations are adopted.

(c) Statement of Purpose

It is the purpose of these regulations to promote the public health, safety and general welfare, and to:

1. Protect human life and health;
2. Minimize expenditure of public money for costly flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. Minimize prolonged business interruptions;
5. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
6. Help maintain a stable tax base by providing for the proper use and development of areas of special flood hazard so as to protect property and minimize future flood blight areas;
7. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions;
8. Minimize the impact of development on adjacent properties within and near flood prone areas;
9. Ensure that the flood storage and conveyance functions of the floodplain are maintained;
10. Minimize the impact of development on the natural, beneficial values of the floodplain;
11. Prevent floodplain uses that are either hazardous or environmentally incompatible; and
12. Meet community participation requirements of the National Flood Insurance Program.

(d) Methods of Reducing Flood Loss

In order to accomplish its purposes, these regulations include methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water hazards, or which result in damaging increases in flood heights or velocities;
2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
4. Controlling filling, grading, dredging, excavating, and other development which may increase flood damage; and,
5. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

(e) Lands to Which These Regulations Apply

These regulations shall apply to all areas of special flood hazard within the jurisdiction of the City of Ironton as identified in Section 1456.00 (f), including any additional areas of special flood hazard annexed by City of Ironton.

(f) Basis for Establishing the Areas of Special Flood Hazard

For the purposes of these regulations, the following studies and / or maps are adopted:

1. Flood Insurance Study titled "Lawrence County, Ohio and Incorporated Areas", dated March 16, 2006. Flood Insurance Rate Map titled "Lawrence County, Ohio and Incorporated Areas", dated March 16, 2006.
2. Other studies and / or maps which may be relied upon for establishment of the flood protection elevation, delineation of the 100-year floodplain, floodways or delineation of other areas of special flood hazard include: None at this time.
3. Any hydrologic and hydraulic engineering analysis authored by a registered Professional Engineer in the State of Ohio which has been approved by the City of Ironton as required by Section 1456.03 (c) Subdivisions and Large Scale Developments.

Any revisions to the aforementioned maps and / or studies are hereby adopted by reference and declared to be a part of these regulations. Such maps and/or studies are on file at the City of Ironton Engineering Department, 301 South Third Street, 3rd Floor, Ironton, Ohio

(g) Abrogation and Greater Restrictions

These regulations are not intended to repeal any existing ordinances including subdivision regulations, zoning or building codes. In the event of a conflict between these regulations and any other ordinance, the more restrictive shall be followed. These regulations shall not impair any deed restriction covenant or easement but the land subject to such interests shall also be governed by the regulations.

(h) Interpretation

In the interpretation and application of these regulations, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the governing body; and,
3. Deemed neither to limit nor repeal any other powers granted under state statutes. Where a provision of these regulations may be in conflict with a state or Federal law, such state or Federal law shall take precedence over these regulations.

(i) Warning and Disclaimer of Liability

The degree of flood protection required by these regulations is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. These regulations do not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damage. These regulations shall not create liability on the part of the City of Ironton, any officer or employee thereof, or the Federal Emergency Management Agency, for any flood damage that results from reliance on these regulations or any administrative decision lawfully made thereunder.

(j) Severability

Should any section or provision of these regulations be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the regulations as a whole, or any part thereof other than the part so declared to be unconstitutional or invalid.

1456.01: DEFINITIONS

Unless specifically defined below, words or phrases used in these regulations shall be interpreted so as to give them the meaning they have in common usage and to give these regulations the most reasonable application.

Accessory Structure

A structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal structure.

Appeal

A request for review of the floodplain administrator's interpretation of any provision of these regulations or a request for a variance.

Base Flood

The flood having a one percent chance of being equaled or exceeded in any given year. The base flood may also be referred to as the 1% chance annual flood or one-hundred (100) year flood.

Base (100-Year) Flood Elevation (BFE)

The water surface elevation of the base flood in relation to a specified datum, usually the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988, and usually expressed in Feet Mean Sea Level (MSL). In Zone AO areas, the base flood elevation is the natural grade elevation plus the depth number (from 1 to 3 feet).

Basement

Any area of the building having its floor subgrade (below ground level) on all sides.

Development

Any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

Enclosure Below the Lowest Floor

See "Lowest Floor."

Executive Order 11988 (Floodplain Management)

Issued by President Carter in 1977, this order requires that no federally assisted activities be conducted in or have the potential to affect identified special flood hazard areas, unless there is no practicable alternative.

Federal Emergency Management Agency (FEMA)

The agency with the overall responsibility for administering the National Flood Insurance Program.

Fill

A deposit of earth material placed by artificial means.

Flood or Flooding

A general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters, and/or
2. The unusual and rapid accumulation or runoff of surface waters from any source.

Flood Hazard Boundary Map (FHBM)

Usually the initial map produced by the Federal Emergency Management Agency, or U.S. Department of Housing and Urban Development, for a community depicting approximate special flood hazard areas.

Flood Insurance Rate Map (FIRM)

An official map on which the Federal Emergency Management Agency or the U.S. Department of Housing and Urban Development has delineated the areas of special flood hazard.

Flood Insurance Risk Zones

Zone designations on FHBMs and FIRMs that indicate the magnitude of the flood hazard in specific areas of a community. Following are the zone definitions:

Zone A:

Special flood hazard areas inundated by the 100-year flood; base flood elevations are not determined.

Zones A1-30 and Zone AE:

Special flood hazard areas inundated by the 100-year flood; base flood elevations are determined.

Zone AO:

Special flood hazard areas inundated by the 100-year flood; with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths are determined.

Zone AH:

Special flood hazard areas inundated by the 100-year flood; flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations are determined.

Zone A99:

Special flood hazard areas inundated by the 100-year flood to be protected from the 100-year flood by a Federal flood protection system under construction; no base flood elevations are determined.

Zone B and Zone X (shaded):

Areas of 500-year flood; areas subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from the base flood.

Zone C and Zone X (unshaded):

Areas determined to be outside the 500-year floodplain.

Flood Insurance Study (FIS)

The official report in which the Federal Emergency Management Agency or the U.S. Department of Housing and Urban Development has provided flood profiles, floodway boundaries (sometimes shown on Flood Boundary and Floodway Maps), and the water surface elevations of the base flood.

Flood Protection Elevation

The Flood Protection Elevation, or FPE, is the base flood elevation plus 1 foot of freeboard. In areas where no base flood elevations exist from any authoritative source, the flood protection elevation can be historical flood elevations, or base flood elevations determined and/or approved by the floodplain administrator.

Floodway

A floodway is the channel of a river or other watercourse and the adjacent land areas that have been reserved in order to pass the base flood discharge. A floodway is typically determined through a hydraulic and hydrologic engineering analysis such that the cumulative increase in the water surface elevation of the base flood discharge is no more than a designated height. In no case shall the designated height be more than one foot at any point within the community.

The floodway is an extremely hazardous area, and is usually characterized by any of the following: Moderate to high velocity flood waters, high potential for debris and projectile impacts, and moderate to high erosion forces.

Freeboard

A factor of safety usually expressed in feet above a flood level for the purposes of floodplain management. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, obstructed bridge openings, debris and ice jams, and the hydrologic effect of urbanization in a watershed.

Historic structure

Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listings on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; or
3. Individually listed on the State of Ohio's inventory of historic places maintained by the Ohio Historic Preservation Office.

Hydrologic and hydraulic engineering analysis

An analysis performed by a professional engineer, registered in the State of Ohio, in accordance with standard engineering practices as accepted by FEMA, used to determine flood elevations and/or floodway boundaries.

Letter of Map Change (LOMC)

A Letter of Map Change is an official FEMA determination, by letter, to amend or revise effective Flood Insurance Rate Maps, Flood Boundary and Floodway Maps, and Flood Insurance Studies. LOMC's are broken down into the following categories:

Letter of Map Amendment (LOMA)

A revision based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a specific property is not located in a special flood hazard area.

Letter of Map Revision (LOMR)

A revision based on technical data that, usually due to manmade changes, shows changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric features. One common type of LOMR, a LOMR-F, is a determination concerning whether a structure or parcel has been elevated by fill above the base flood elevation and is, therefore, excluded from the special flood hazard area.

Conditional Letter of Map Revision (CLOMR)

A formal review and comment by FEMA as to whether a proposed project complies with the minimum National Flood Insurance Program floodplain management criteria. A CLOMR does not amend or revise effective Flood Insurance Rate Maps, Flood Boundary and Floodway Maps, or Flood Insurance Studies.

Lowest floor

The lowest floor of the lowest enclosed area (including basement) of a structure. This definition excludes an "enclosure below the lowest floor" which is an unfinished or flood resistant enclosure usable solely for parking of vehicles, building access or storage, in an area other than a basement area, provided that such enclosure is built in accordance with the applicable design requirements specified in these regulations for enclosures below the lowest floor.

Manufactured home

A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle". For the purposes of these regulations, a manufactured home includes manufactured homes and mobile homes as defined in Chapter 3733 of the Ohio Revised Code.

Manufactured home park

As specified in the Ohio Administrative Code 3701-27-01, a manufactured home park means any tract of land upon which three or more manufactured homes, used for habitation are parked, either free of charge or for revenue purposes, and includes any roadway, building, structure, vehicle, or enclosure used or intended for use as part of the facilities of the park. A tract of land that is subdivided and the individual lots are not for rent or rented, but are for sale or sold for the purpose of installation of manufactured homes on the lots, is not a manufactured home park, even though three or more manufactured homes are parked thereon, if the roadways are dedicated to the local government authority.

National Flood Insurance Program (NFIP)

The NFIP is a Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal government that states if a community will adopt and enforce floodplain management regulations to reduce future flood risks to all development in special flood hazard areas, the Federal government will make flood insurance available within the community as a financial protection against flood loss.

New construction

Structures for which the "start of construction" commenced on or after the initial effective date of the City of Ironton Flood Insurance Rate Map, July 5, 1983, and includes any subsequent improvements to such structures.

Person

Includes any individual or group of individuals, corporation, partnership, association, or any other entity, including state and local governments and agencies. An agency is further defined in the Ohio Revised Code Section 111.15 as any governmental entity of the state and includes, but is not limited to, any board, department, division, commission, bureau, society, council, institution, state college or university, community college district, technical college district, or state community college. "Agency" does not include the general assembly, the controlling board, the adjutant general's department, or any court.

Recreational vehicle

A vehicle which is (1) built on a single chassis, (2) 400 square feet or less when measured at the largest horizontal projection, (3) designed to be self-propelled or permanently towable by a light duty truck, and (4) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Registered Professional Architect

A person registered to engage in the practice of architecture under the provisions of sections 4703.01 to 4703.19 of the Revised Code.

Registered Professional Engineer

A person registered as a professional engineer under Chapter 4733 of the Revised Code.

Registered Professional Surveyor

A person registered as a professional surveyor under Chapter 4733 of the Revised Code.

Special Flood Hazard Area

Also known as "Areas of Special Flood Hazard", it is the land in the floodplain subject to a one percent or greater chance of flooding in any given year. Special flood hazard areas are designated by the Federal Emergency Management Agency on Flood Insurance Rate Maps, Flood Insurance Studies, Flood Boundary and Floodway Maps and Flood Hazard Boundary Maps as Zones A, AE, AH, AO, A1-30, and A99. Special flood hazard areas may also refer to areas that are flood prone and designated from other federal state or local sources of data including but not limited to historical flood information reflecting high water marks, previous flood inundation areas, and flood prone soils associated with a watercourse.

Start of construction

The date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of a building.

Structure

A walled and roofed building, manufactured home, or gas or liquid storage tank that is principally above ground.

Substantial Damage

Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement

Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include:

1. Any improvement to a structure which is considered "new construction,"
2. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified prior to the application for a development permit by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
3. Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure".

Variance

A grant of relief from the standards of these regulations consistent with the variance conditions herein.

Violation

The failure of a structure or other development to be fully compliant with these regulations.

1456.02: ADMINISTRATION

(a) Designation of the Floodplain Administrator

The City of Ironton's City Engineer is hereby appointed to administer and implement these regulations and is referred to herein as the Floodplain Administrator.

(b) Duties and Responsibilities of the Floodplain Administrator

The duties and responsibilities of the Floodplain Administrator shall include but are not limited to:

1. Evaluate applications for permits to develop in special flood hazard areas.
2. Interpret floodplain boundaries and provide flood hazard and flood protection elevation information.
3. Issue permits to develop in special flood hazard areas when the provisions of these regulations have been met, or refuse to issue the same in the event of noncompliance.
4. Inspect buildings and lands to determine whether any violations of these regulations have been committed.
5. Make and permanently keep all records for public inspection necessary for the administration of these regulations including Flood Insurance Rate Maps, Letters of Map Amendment and Revision, records of issuance and denial of permits to develop in special flood hazard areas, determinations of whether development is in or out of special flood hazard areas for the purpose of issuing floodplain development permits, elevation certificates, variances, and records of enforcement actions taken for violations of these regulations.
6. Enforce the provisions of these regulations.
7. Provide information, testimony, or other evidence as needed during variance hearings.
8. Coordinate map maintenance activities and FEMA follow-up.
9. Conduct substantial damage determinations to determine whether existing structures, damaged from any source and in special flood hazard areas identified by FEMA, must meet the development standards of these regulations.

(c) Floodplain Development Permits

It shall be unlawful for any person to begin construction or other development activity including but not limited to filling; grading; construction; alteration, remodeling, or expanding any structure; or alteration of any watercourse wholly within, partially within or in contact with any identified special flood hazard area, as established in Section 1456.00 (f), until a floodplain development permit is obtained from the Floodplain Administrator. Such floodplain development permit shall show that the proposed development activity is in conformity with the provisions of these regulations. No such permit shall be issued by the Floodplain Administrator until the requirements of these regulations have been met.

(d) Application Required

An application for a floodplain development permit shall be required for all development activities located wholly within, partially within, or in contact with an identified special flood hazard area. Such application shall be made by the owner of the property or his/her authorized agent, herein referred to as the applicant, prior to the actual commencement of such construction on a form furnished for that purpose. Where it is unclear whether a development site is in a special flood hazard area, the Floodplain Administrator may require an application for a floodplain development permit to determine the development's location. Such applications shall include, but not be limited to:

1. Site plans drawn to scale showing the nature, location, dimensions, and topography of the area in question; the location of existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing.
2. Elevation of the existing, natural ground where structures are proposed.
3. Elevation of the lowest floor, including basement, of all proposed structures.
4. Such other material and information as may be requested by the Floodplain Administrator to determine conformance with, and provide enforcement of these regulations.

5. Technical analyses conducted by the appropriate design professional registered in the State of Ohio and submitted with an application for a floodplain development permit when applicable:
 - a. Floodproofing certification for non-residential floodproofed structure as required in Section 1456.03 (e).
 - b. Certification that fully enclosed areas below the lowest floor of a structure not meeting the design requirements of Section 1456.03 (d) (5) are designed to automatically equalize hydrostatic flood forces.
 - c. Description of any watercourse alteration or relocation that the flood carrying capacity of the watercourse will not be diminished, and maintenance assurances as required in Section 1456.03 (i) (3).
 - d. A hydrologic and hydraulic analysis demonstrating that the cumulative effect of proposed development, when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood by more than one foot in special flood hazard areas where the Federal Emergency Management Agency has provided base flood elevations but no floodway as required by Section 1456.03 (i) (2).
 - e. A hydrologic and hydraulic engineering analysis showing impact of any development on flood heights in an identified floodway as required by Section 1456.03 (i) (1).
 - f. Generation of base flood elevation(s) for subdivision and large scale developments as required by Section 1456.03 (c).
6. A \$25.00 fee for a Floodplain Development Permit Application to be collected by the City of Ironton's Engineering Department.

(e) Review and Approval of a Floodplain Development Permit Application

1. Review

- a. After receipt of a complete application, the Floodplain Administrator shall review the application to ensure that the standards of these regulations have been met. No floodplain development permit application shall be reviewed until all information required in Section 1456.02 (d) has been received by the Floodplain Administrator.
- b. The Floodplain Administrator shall review all floodplain development permit applications to assure that all necessary permits have been received from those federal, state or local governmental agencies from which prior approval is required. The applicant shall be responsible for obtaining such permits as required including permits issued by the U.S. Army Corps of Engineers under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, and the Ohio Environmental Protection Agency under Section 401 of the Clean Water Act.

2. Approval

Within thirty (30) days after the receipt of a complete application, the Floodplain Administrator shall either approve or disapprove the application. If an application is approved, a floodplain development permit shall be issued. All floodplain development permits shall be conditional upon the commencement of work within one (1) year. A floodplain development permit shall expire one (1) year after issuance unless the permitted activity has been substantially begun and is thereafter pursued to completion.

(f) Inspections

The Floodplain Administrator shall make periodic inspections at appropriate times throughout the period of construction in order to monitor compliance with permit conditions.

(g) Post-Construction Certifications Required

The following as-built certifications are required after a floodplain development permit has been issued:

1. For new or substantially improved residential structures, or nonresidential structures that have been elevated, the applicant shall have a *Federal Emergency Management Agency Elevation Certificate* completed by a registered surveyor to record as-built elevation data. For elevated structures in Zone A and Zone AO areas without a base flood elevation, the elevation certificate may be completed by the property owner or owner's representative.
2. For all development activities subject to the standards of Section 1456.02 (j) (1), a Letter of Map Revision.

(h) Revoking a Floodplain Development Permit

A floodplain development permit shall be revocable, if among other things, the actual development activity does not conform to the terms of the application and permit granted thereon. In the event of the revocation of a permit, an appeal may be taken to the Appeals Board in accordance with Section 1456.04 of these regulations.

(i) Exemption from Filing a Development Permit

An application for a floodplain development permit shall not be required for:

1. Maintenance work such as roofing, painting, and basement sealing, or for small nonstructural development activities (except for filling and grading) valued at less than \$5,000.
2. Development activities in an existing or proposed manufactured home park that are under the authority of the Ohio Department of Health and subject to the flood damage reduction provisions of the Ohio Administrative Code Section 3701.
3. Major utility facilities permitted by the Ohio Power Siting Board under Section 4906 of the Ohio Revised Code.
4. Hazardous waste disposal facilities permitted by the Hazardous Waste Siting Board under Section 3734 of the Ohio Revised Code.
5. Development activities undertaken by a federal agency and which are subject to Federal Executive Order 11988 – Floodplain Management.

Any proposed action exempt from filing for a floodplain development permit is also exempt from the standards of these regulations.

(j) Map Maintenance Activities

To meet National Flood Insurance Program minimum requirements to have flood data reviewed and approved by FEMA, and to ensure that City of Ironton flood maps, studies and other data identified in Section 1456.00 (f) accurately represent flooding conditions so appropriate floodplain management criteria are based on current data, the following map maintenance activities are identified:

1. Requirement to Submit New Technical Data

- a. For all development proposals that impact floodway delineations or base flood elevations, the community shall ensure that technical data reflecting such changes be submitted to FEMA within six months of the date such information becomes available. These development proposals include:
 1. Floodway encroachments that increase or decrease base flood elevations or alter floodway boundaries;
 2. Fill sites to be used for the placement of proposed structures where the applicant desires to remove the site from the special flood hazard area;
 3. Alteration of watercourses that result in a relocation or elimination of the special flood hazard area, including the placement of culverts; and
 4. Subdivision or large scale development proposals requiring the establishment of base flood elevations in accordance with Section 1456.03 (c).

- b. It is the responsibility of the applicant to have technical data, required in accordance with Section 1456.02 (j) (1), prepared in a format required for a Conditional Letter of Map Revision or Letter of Map Revision, and submitted to FEMA. Submittal and processing fees for these map revisions shall be the responsibility of the applicant.
- c. The Floodplain Administrator shall require a Conditional Letter of Map Revision prior to the issuance of a floodplain development permit for:
 - 1. Proposed floodway encroachments that increase the base flood elevation; and
 - 2. Proposed development which increases the base flood elevation by more than one foot in areas where FEMA has provided base flood elevations but no floodway.
- d. Floodplain development permits issued by the Floodplain Administrator shall be conditioned upon the applicant obtaining a Letter of Map Revision from FEMA for any development proposal subject to Section 1456.02 (j) (1) (a).

2. Right to Submit New Technical Data

The Floodplain Administrator may request changes to any of the information shown on an effective map that does not impact floodplain or floodway delineations or base flood elevations, such as labeling or planimetric details. Such a submission shall include appropriate supporting documentation made in writing by the Mayor of the City of Ironton, and may be submitted at any time.

3. Annexation / Detachment

Upon occurrence, the Floodplain Administrator shall notify FEMA in writing whenever the boundaries of the City of Ironton have been modified by annexation or the community has assumed authority over an area, or no longer has authority to adopt and enforce floodplain management regulations for a particular area. In order that the City of Ironton's Flood Insurance Rate Map accurately represent the City of Ironton boundaries, include within such notification a copy of a map of the City of Ironton suitable for reproduction, clearly showing the new corporate limits or the new area for which the City of Ironton has assumed or relinquished floodplain management regulatory authority.

(k) Data Use and Flood Map Interpretation

The following guidelines shall apply to the use and interpretation of maps and other data showing areas of special flood hazard:

- 1. In areas where FEMA has not identified special flood hazard areas, or in FEMA identified special flood hazard areas where base flood elevation and floodway data have not been identified, the Floodplain Administrator shall review and reasonably utilize any other flood hazard data available from a federal, state, or other source.
- 2. Base flood elevations and floodway boundaries produced on FEMA flood maps and studies shall take precedence over base flood elevations and floodway boundaries by any other source that reflect a reduced floodway width and/or lower base flood elevations. Other sources of data, showing increased base flood elevations and/or larger floodway areas than are shown on FEMA flood maps and studies, shall be reasonably used by the Floodplain Administrator.
- 3. When Preliminary Flood Insurance Rate Maps and / or Flood Insurance Study have been provided by FEMA:
 - a. Upon the issuance of a Letter of Final Determination by the FEMA, the preliminary flood hazard data shall be used and replace all previously existing flood hazard data provided from FEMA for the purposes of administering these regulations.
 - b. Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall only be required where no base flood elevations and /or floodway areas exist or where the preliminary base flood elevations or floodway area exceed the base flood elevations and/or floodway widths in existing flood hazard data provided from FEMA. Such preliminary data may be subject to change and / or appeal to FEMA.

4. The Floodplain Administrator shall make interpretations, where needed, as to the exact location of the flood boundaries and areas of special flood hazard. A person contesting the determination of the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 1456.04, Appeals and Variances.
5. Where a map boundary showing an area of special flood hazard and field elevations disagree, the base flood elevations or flood protection elevations (as found on an elevation profile, floodway data table, established high water marks, etc.) shall prevail.

(I) Substantial Damage Determinations

Damages to structures may result from a variety of causes including flood, tornado, wind, heavy snow, fire, etc. After such a damage event, the Floodplain Administrator shall:

1. Determine whether damaged structures are located in special flood hazard areas;
2. Conduct substantial damage determinations for damaged structures located in special flood hazard areas; and
3. Make reasonable attempt to notify owners of substantially damaged structures of the need to obtain a floodplain development permit prior to repair, rehabilitation, or reconstruction.

Additionally, the Floodplain Administrator may implement other measures to assist with the substantial damage determination and subsequent repair process. These measures include issuing press releases, public service announcements, and other public information materials related to the floodplain development permits and repair of damaged structures; coordinating with other federal, state, and local agencies to assist with substantial damage determinations; providing owners of damaged structures materials and other information related to the proper repair of damaged structures in special flood hazard areas; and assist owners of substantially damaged structures with Increased Cost of Compliance insurance claims.

1456.03: USE AND DEVELOPMENT STANDARDS FOR FLOOD HAZARD REDUCTION

The following use and development standards apply to development wholly within, partially within, or in contact with any special flood hazard area as established in Section 1456.00 (f) or 1456.02 (k) (1):

(a) Use Regulations

1. Permitted Uses

All uses not otherwise prohibited in this section or any other applicable land use regulation adopted by City of Ironton are allowed provided they meet the provisions of these regulations.

2. Prohibited Uses

- a. Private water supply systems in all special flood hazard areas identified by FEMA, permitted under Section 3701 of the Ohio Revised Code.
- b. Infectious waste treatment facilities in all special flood hazard areas, permitted under Section 3734 of the Ohio Revised Code.

(b) Water and Wastewater Systems

The following standards apply to all water supply, sanitary sewerage and waste disposal systems not otherwise regulated by the Ohio Revised Code:

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;
2. New and replacement sanitary sewerage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and,
3. On-site waste disposal systems shall be located to avoid impairment to or contamination from them during flooding.

(c) Subdivisions and Large Developments

1. All subdivision proposals shall be consistent with the need to minimize flood damage and are subject to all applicable standards in these regulations;
2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;
3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and
4. In all areas of special flood hazard where base flood elevation data are not available, the applicant shall provide a hydrologic and hydraulic engineering analysis that generates base flood elevations for all subdivision proposals and other proposed developments containing at least 50 lots or 5 acres, whichever is less.
5. The applicant shall meet the requirement to submit technical data to FEMA in Section 1456.02 (j) (1) (a) (4) when a hydrologic and hydraulic analysis is completed that generates base flood elevations as required by Section 1456.03 (c) (4).

(d) Residential Structures

1. New construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Where a structure, including its foundation members, is elevated on fill to or above the base flood elevation, the requirements for anchoring (1456.03 (d) (1)) and construction materials resistant to flood damage (1456.03 (d) (2)) are satisfied.
2. New construction and substantial improvements shall be constructed with methods and materials resistant to flood damage.
3. New construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are

designed and/or elevated so as to prevent water from entering or accumulating within the components during conditions of flooding.

4. New construction and substantial improvement of any residential structure, including manufactured homes, shall have the lowest floor, including basement, elevated to or above the flood protection elevation.
5. New construction and substantial improvements, including manufactured homes, that do not have basements and that are elevated to the flood protection elevation using pilings, columns, posts, or solid foundation perimeter walls with openings sufficient to allow unimpeded movement of flood waters may have an enclosure below the lowest floor provided the enclosure meets the following standards:
 - a. Be used only for the parking of vehicles, building access, or storage; and
 - b. be designed and certified by a registered professional engineer or architect to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters; or
 - c. have a minimum of two openings on different walls having a total net area not less than one square inch for every square foot of enclosed area, and the bottom of all such openings being no higher than one foot above grade. The openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
6. Manufactured homes shall be affixed to a permanent foundation and anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
7. Repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and is the minimum necessary to preserve the historic character and design of the structure, shall be exempt from the development standards of Section 1456.03 (d).

(e) Nonresidential Structures

1. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall meet the requirements of Section 1456.03 (d) (1) – (3) and (5) – (7).
2. New construction and substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated to or above the level of the flood protection elevation; or, together with attendant utility and sanitary facilities, shall meet all of the following standards:
 - a. Be dry floodproofed so that the structure is watertight with walls substantially impermeable to the passage of water to the level of the flood protection elevation;
 - b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and,
 - c. Be certified by a registered professional engineer or architect, through the use of a *Federal Emergency Management Agency Floodproofing Certificate*, that the design and methods of construction are in accordance with Section 1456.03 (e) (2) (a) and (b).

(f) Accessory Structures

Relief to the elevation or dry floodproofing standards may be granted for accessory structures containing no more than 600 square feet. Such structures must meet the following standards:

1. They shall not be used for human habitation;
2. They shall be constructed of flood resistant materials;
3. They shall be constructed and placed on the lot to offer the minimum resistance to the flow of flood waters;
4. They shall be firmly anchored to prevent flotation;

5. Service facilities such as electrical and heating equipment shall be elevated or floodproofed to or above the level of the flood protection elevation; and
6. They shall meet the opening requirements of Section 1456.03 (d) (5) (c);

(g) Recreational Vehicles

Recreational vehicles must meet at least one of the following standards:

- 1) They shall not be located on sites in special flood hazard areas for more than 180 days, or
- 2) They must be fully licensed and ready for highway use, or
- 3) They must meet all standards of Section 1456.03 (d).

(h) Above Ground Gas or Liquid Storage Tanks

All above ground gas or liquid storage tanks shall be anchored to prevent flotation or lateral movement resulting from hydrodynamic and hydrostatic loads.

(i) Assurance of Flood Carrying Capacity

Pursuant to the purpose and methods of reducing flood damage stated in these regulations, the following additional standards are adopted to assure that the reduction of the flood carrying capacity of watercourses is minimized:

1. Development in Floodways

- a. In floodway areas, development shall cause no increase in flood levels during the occurrence of the base flood discharge. Prior to issuance of a floodplain development permit, the applicant must submit a hydrologic and hydraulic analysis, conducted by a registered professional engineer, demonstrating that the proposed development would not result in any increase in the base flood elevation; or
- b. Development in floodway areas causing increases in the base flood elevation may be permitted provided all of the following are completed by the applicant:
 1. Meet the requirements to submit technical data in Section 1456.02 (j) (1);
 2. An evaluation of alternatives which would not result in increased base flood elevations and an explanation why these alternatives are not feasible;
 3. Certification that no structures are located in areas which would be impacted by the increased base flood elevation;
 4. Documentation of individual legal notices to all impacted property owners within and outside the community, explaining the impact of the proposed action on their property; and
 5. Concurrence of the Mayor of the City of Ironton and the Chief Executive Officer of any other communities impacted by the proposed actions.

2. Development in Riverine Areas with Base Flood Elevations but No Floodways

- a. In riverine special flood hazard areas identified by FEMA where base flood elevation data are provided but no floodways have been designated, the cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the base flood elevation more than 1.0 (one) foot at any point. Prior to issuance of a floodplain development permit, the applicant must submit a hydrologic and hydraulic analysis, conducted by a registered professional engineer, demonstrating that this standard has been met; or,
- b. Development in riverine special flood hazard areas identified by FEMA where base flood elevation data are provided but no floodways have been designated causing more than one foot increase in the base flood elevation may be permitted provided all of the following are completed by the applicant:

1. An evaluation of alternatives which would result in an increase of one foot or less of the base flood elevation and an explanation why these alternatives are not feasible;
2. Section 1456.03 (i) (1) (b), items (1) and (3)-(5).

3. Alterations of a Watercourse

For the purpose of these regulations, a watercourse is altered when any change occurs within its banks. The extent of the banks shall be established by a field determination of the "bankfull stage." The field determination of "bankfull stage" shall be based on methods presented in Chapter 7 of the *USDA Forest Service General Technical Report RM-245, Stream Channel Reference Sites: An Illustrated Guide to Field Technique* or other applicable publication available from a Federal, State, or other authoritative source. For all proposed developments that alter a watercourse, the following standards apply:

- a. The bankfull flood carrying capacity of the altered or relocated portion of the watercourse shall not be diminished. Prior to the issuance of a floodplain development permit, the applicant must submit a description of the extent to which any watercourse will be altered or relocated as a result of the proposed development, and certification by a registered professional engineer that the bankfull flood carrying capacity of the watercourse will not be diminished.
- b. Adjacent communities, the U.S. Army Corps of Engineers, and the Ohio Department of Natural Resources, Division of Water, must be notified prior to any alteration or relocation of a watercourse. Evidence of such notification must be submitted to the Federal Emergency Management Agency.
- c. The applicant shall be responsible for providing the necessary maintenance for the altered or relocated portion of said watercourse so that the flood carrying capacity will not be diminished. The Floodplain Administrator may require the permit holder to enter into an agreement with the City of Ironton specifying the maintenance responsibilities. If an agreement is required, it shall be made a condition of the floodplain development permit.
- d. The applicant shall meet the requirements to submit technical data in Section 1456.02 (j) (1) (a) (3) when an alteration of a watercourse results in the relocation or elimination of the special flood hazard area, including the placement of culverts.

1456.04: APPEALS AND VARIANCES

(a) Appeals Board Established

1. The Zoning Appeals Board established by Chapter 1254 of the codified ordinances of the City of Ironton shall serve as the Appeals Board for the Special Purpose Flood Damage Reduction.
2. A chairperson shall be elected by the members of the Appeals Board. Meetings of the Appeals Board shall be held as needed and shall be held at the call of the Chairperson, or in his absence, the Acting Chairperson. All meetings of the Appeals Board shall be open to the public except that the Board may deliberate in executive sessions as part of quasi-judicial hearings in accordance with law. The Appeals Board shall keep minutes of its proceedings showing the vote of each member upon each question and shall keep records of all official actions. Records of the Appeals Board shall be kept and filed in the City of Ironton's Engineering Office.

(b) Powers and Duties

1. The Appeals Board shall hear and decide appeals where it is alleged there is an error in any order, requirement, decision or determination made by the Floodplain Administrator in the administration or enforcement of these regulations.
2. Authorize variances in accordance with Section 1456.04 (d) of these regulations.

(c) Appeals

Any person affected by any notice and order, or other official action of the Floodplain Administrator may request and shall be granted a hearing on the matter before the Appeals Board provided that such person shall file, within 30 days of the date of such notice and order, or other official action, a brief statement of the grounds for such hearing or for the mitigation of any item appearing on any order of the Floodplain Administrator's decision. Such appeal shall be in writing, signed by the applicant, and be filed with the Floodplain Administrator. Upon receipt of the appeal, the Floodplain Administrator shall transmit said notice and all pertinent information on which the Floodplain Administrator's decision was made to the Appeals Board.

Upon receipt of the notice of appeal, the Appeals Board shall fix a reasonable time for the appeal, give notice in writing to parties in interest, and decide the appeal within a reasonable time after it is submitted.

(d) Variances

Any person believing that the use and development standards of these regulations would result in unnecessary hardship may file an application for a variance. The Appeals Board shall have the power to authorize, in specific cases, such variances from the standards of these regulations, not inconsistent with Federal regulations, as will not be contrary to the public interest where, owing to special conditions of the lot or parcel, a literal enforcement of the provisions of these regulations would result in unnecessary hardship.

1. Application for a Variance

- a. Any owner, or agent thereof, of property for which a variance is sought shall make an application for a variance by filing it with the Floodplain Administrator, who upon receipt of the variance shall transmit it to the Appeals Board.
- b. Such application at a minimum shall contain the following information: Name, address, and telephone number of the applicant; legal description of the property; parcel map; description of the existing use; description of the proposed use; location of the floodplain; description of the variance sought; and reason for the variance request.
- c. All applications for a variance shall be accompanied by a \$25.00 fee to be collected by the City of Ironton's Engineering Department.

2. Notice for Public Hearing

The Appeals Board shall schedule and hold a public hearing within thirty (30) days after the receipt of an application for a variance from the Floodplain Administrator. Prior to the hearing, a notice of such hearing shall be given in one (1) or more newspapers of general circulation in the community at least ten (10) days before the date of the hearing.

3. Public Hearing

At such hearing the applicant shall present such statements and evidence as the Appeals Board requires. In considering such variance applications, the Appeals Board shall consider and make findings of fact on all evaluations, all relevant factors, standards specified in other sections of these regulations and the following factors:

- a. The danger that materials may be swept onto other lands to the injury of others.
- b. The danger to life and property due to flooding or erosion damage.
- c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
- d. The importance of the services provided by the proposed facility to the community.
- e. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.
- f. The necessity to the facility of a waterfront location, where applicable.
- g. The compatibility of the proposed use with existing and anticipated development.
- h. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.
- i. The safety of access to the property in times of flood for ordinary and emergency vehicles.
- j. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site.
- k. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

Variations shall only be issued upon:

- a. A showing of good and sufficient cause.
- b. A determination that failure to grant the variance would result in exceptional hardship due to the physical characteristics of the property. Increased cost or inconvenience of meeting the requirements of these regulations does not constitute an exceptional hardship to the applicant.
- c. A determination that the granting of a variance will not result in increased flood heights beyond that which is allowed in these regulations; additional threats to public safety; extraordinary public expense, nuisances, fraud on or victimization of the public, or conflict with existing local laws.
- d. A determination that the structure or other development is protected by methods to minimize flood damages.
- e. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

Upon consideration of the above factors and the purposes of these regulations, the Appeals Board may attach such conditions to the granting of variances as it deems necessary to further the purposes of these regulations.

4. Other Conditions for Variances

- a. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- b. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items in Section 1456.04 (d) (3) (a) to (k) have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.
- c. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and

the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(e) Procedure at Hearings

- A. All testimony shall be given under oath.
- B. A complete record of the proceedings shall be kept, except confidential deliberations of the Board, but including all documents presented and a verbatim record of the testimony of all witnesses.
- C. The applicant shall proceed first to present evidence and testimony in support of the appeal or variance.
- D. The administrator may present evidence or testimony in opposition to the appeal or variance.
- E. All witnesses shall be subject to cross-examination by the adverse party or their counsel.
- F. Evidence that is not admitted may be proffered and shall become part of the record for appeal.
- G. The Board shall issue subpoenas upon written request for the attendance of witnesses. A reasonable deposit to cover the cost of issuance and service shall be collected in advance.
- H. The Board shall prepare conclusions of fact supporting its decision. The decision may be announced at the conclusion of the hearing and thereafter issued in writing or the decision may be issued in writing within a reasonable time after the hearing.

(f) Appeal to the Court

Those aggrieved by the decision of the Appeals Board may appeal such decision to the Lawrence County Court of Common Pleas, as provided in Chapter 2506 of the Ohio Revised Code.

1456.90: ENFORCEMENT

(a) Compliance Required

1. No structure or land shall hereafter be located, erected, constructed, reconstructed, repaired, extended, converted, enlarged or altered without full compliance with the terms of these regulations and all other applicable regulations which apply to uses within the jurisdiction of these regulations, unless specifically exempted from filing for a development permit as stated in Section 1456.02 (i).
2. Failure to obtain a floodplain development permit shall be a violation of these regulations and shall be punishable in accordance with Section 1456.90 (c).
3. Floodplain development permits issued on the basis of plans and applications approved by the Floodplain Administrator authorize only the use, and arrangement, set forth in such approved plans and applications or amendments thereto. Use, arrangement, or construction contrary to that authorized shall be deemed a violation of these regulations and punishable in accordance with Section 1456.90 (c).

(b) Notice of Violation

Whenever the Floodplain Administrator determines that there has been a violation of any provision of these regulations, he shall give notice of such violation to the person responsible therefore and order compliance with these regulations as hereinafter provided. Such notice and order shall:

1. Be put in writing on an appropriate form;
2. Include a list of violations, referring to the section or sections of these regulations that have been violated, and order remedial action which, if taken, will effect compliance with the provisions of these regulations;
3. Specify a reasonable time for performance;
4. Advise the owner, operator, or occupant of the right to appeal;
5. Be served on the owner, occupant, or agent in person. However, this notice and order shall be deemed to be properly served upon the owner, occupant, or agent if a copy thereof is sent by registered or certified mail to the person's last known mailing address, residence, or place of business, and/or a copy is posted in a conspicuous place in or on the dwelling affected.

(c) Violations and Penalties

Violation of the provisions of these regulations or failure to comply with any of its requirements shall be deemed to be a strict liability offense, and shall constitute a M1 misdemeanor. Any person who violates these regulations or fails to comply with any of its requirements shall upon conviction thereof be fined or imprisoned as provided by the laws of the City of Ironton. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Ironton from taking such other lawful action as is necessary to prevent or remedy any violation. The City of Ironton shall prosecute any violation of these regulations in accordance with the penalties stated herein.

1456.99: ADOPTION

This Ordinance shall take effect from and after the earliest period allowed by law and replaces Ordinance Number 89-21, which is hereby repealed.

Sponsored by: R. Cleary
R. Huff

ORDINANCE NO. 06-05

REPEALING ORDINANCE NO. 89-21 AND ADOPTING A NEW VERSION OF CHAPTER 1456, SPECIAL PURPOSE FLOOD DAMAGE REDUCTION, AND DECLARING AN EMERGENCY

WHEREAS, it is in the best interest of the citizens of the City of Ironton that Ordinance 89-21 be repealed and replaced with a new version of the same, which is codified as Chapter 1456 of the City Code;

NOW, THEREFORE, BE IT HEREBY ORDAINED by the Council of the City of Ironton, Ohio, as follows:

Section 1: Ordinance number 89-21 is hereby repealed.

Section 2: That Chapter 1456 of the Code of Ordinances of the City of Ironton, a copy of the same being attached hereto and incorporated herein, be, and hereby is, adopted.

Section 3: That this Ordinance be declared an emergency measure necessary for the protection of the public health, safety, welfare and peace.

Passed this 23 day of February, 2006, at Ironton, Ohio.

Attest: [Signature]
Clerk of Council

[Signature]
Vice Mayor

This Ordinance approved or vetoed

Date: 2/23/06

[Signature]
Mayor

P. 2

RECEIVED: 1/18/07 04:40
CITY OF Ironton
CITY CLERK'S OFFICE
740-538-6088
JAN 18 07 10:54
CITY CLERK'S OFFICE

ATTACHMENT 2 – LAWRENCE COUNTY MULTI-HAZARD MAP

