



LOCAL HAZARD MITIGATION GOALS – CARROLL COUNTY

Including the villages and townships of the county

As per requirement 44 CFR Part 201.6(c)(3)(i): [The hazard mitigation strategy shall include: a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

STAKEHOLDERS (Core Planning Committee)

The Carroll County Emergency Management Agency (EMA) compiled a representative group of stakeholders to be known as the Hazard Mitigation Core Planning Committee (HMC) and serve as the coordinating agency for the implementation of the county's Hazard Mitigation Plan. The stakeholders group is composed of representatives from the following agencies and organizations.

- Carrollton Village
- Dellroy Village
- Leesville Village
- Magnolia Village
- Malvern Village
- Minerva Village
- Sherrodsville Village
- Union Township
- Carroll County Regional Planning
- Carroll County EMA
- Carroll County Commissioners
- R.D. Zande & Associates, Inc.

METHODOLOGY

In the fall of 2004, the Carroll County EMA undertook a project to identify the natural hazards that affect Carroll County. This project was known as the Carroll County Hazard Risk Assessment (HRA). The HRA included not only a listing of the hazards to which the county is susceptible, but also an analysis of the county's vulnerability to those hazards. Vulnerability was examined on several levels, including economic, environmental, and social. The HRA includes an inventory of the county's assets, including critical facilities, economic assets, vulnerable populations, etc., and indicates the potential loss each of the assets could incur as a result of the identified hazards. The HRA also includes a brief analysis of development trends in the county. In short, the HRA provides a factual, numerical foundation on which to base the hazard mitigation plan. (The HRA is included as an appendix to this plan.)



Carroll County Hazard Mitigation Plan

The Carroll County EMA and HMC identified several goals, objectives and strategies to mitigate the hazard risks identified in the Carroll County HRA. This identification process was completed through HMC meetings and public review sessions.

HMC Meeting #1

The development of mitigation goals, objectives, and strategies began at HMC Meeting #1 on November 18, 2004. The meeting was held at the Carroll County Emergency Operations Center. Such a location was considered best, as it is centrally located in the county. Eight (8) individuals representing many of the agencies above attended the meeting.

Three (3) primary items were discussed at this meeting. First, the EMA's contractor discussed the county's HRA. The committee was briefed as to the hazards that were being included in the risk assessment, as well as the number and type of critical facilities being surveyed throughout the county. Carroll County's risk assessment and mitigation plan were being developed concurrently, and committee members actively reviewed draft critical facilities list and commented on the hazards included in the HRA. Stakeholders agreed with the facilities on the list and furthered agreed to encourage assets to respond to surveys from the contractor. Secondary hazards, such as communications failures and ways to lessen these hazards with the goal of improving response were discussed.

Secondly, committee members were briefed on the mitigation planning process and brainstormed potential mitigation goals and strategies for the county. The EMA's contractor stressed that each governmental jurisdiction in Carroll County had to supply a minimum of one (1) project in order for the plan to be considered "multi-jurisdictional". Following the generation process, each represented jurisdiction indicated which strategies best applied to their jurisdiction. The contractor then presented each committee member with a blank copy of the "Carroll County Hazard Mitigation Plan Prioritization Matrix", a document to be used to prioritize mitigation strategies for implementation. This matrix easily provided a way to score projects and document and justify their prioritization. Committee members agreed to complete the matrix and submit the document to the contractor through the EMA office.

Thirdly, the HMC discussed plan maintenance. The committee was told that the plan must be adopted by each participating jurisdiction following its completion. Further, the committee was informed that the plan must be formally updated at a minimum of every five (5) years. The notion of a "running clock" was discussed in that the five-year timeline resets every time the plan is formally re-submitted.



Carroll County Hazard Mitigation Plan

Public Review Session #1

Public Review Session #1 was held January 13, 2005 at 6:30 p.m. in the Carroll County Emergency Operations Center (EOC) in the Village of Carrollton. The meeting was attended by representatives from the Carroll County Commission and the Local Emergency Planning Committee.

With few in attendance, the meeting consisted of a review of the draft plan. Information and surveys to be returned to the Carroll County EMA were distributed.

Public Review Session #2

Public Review Session #2 was held on January 14, 2005 at 9 a.m. in the Carroll County EOC in the Village of Carrollton. The meeting was attended by representatives from the County Commission and Regional Planning.

The meeting consisted of reviews of the existing plans as well as the generation of new objectives and strategies. Strategies concerning the county's GIS system, the county's 911 system, and several others were discussed.

Additional HMC and Public Involvement

The public was involved throughout the entire Hazard Risk Assessment (HRA) and Action Plan (AP) processes. During the HRA, many individuals from the county's assets were contacted regarding their facility. These individuals were briefed on the mitigation planning process and asked for input, both on their facility and on which hazards they thought most threatened Carroll County. Further, members of the HMC distributed blank "Households Hazard Preparedness" questionnaires to various individuals and civic groups in their jurisdictions.

GOALS, OBJECTIVES, AND STRATEGIES

The Carroll County EMA and HMC determined several goals, objectives, and strategies to mitigate the hazard risks identified in the county's HRA. These mitigation actions were developed based on projects thought to be most feasible and beneficial to hazard reduction. It is important to note that not all hazards appearing in the HRA have a significant number of mitigation strategies suggested. For many hazards, public awareness is the most feasible, cost effective, and beneficial strategy. The mitigation actions were also developed in accordance with the types of mitigation strategies identified in "Mitigation Ideas: Possible Mitigation Measures by Hazard Type", which was distributed by the Ohio Emergency Management Agency.



Carroll County Hazard Mitigation Plan

The following strategies have been assigned tentative cost estimates. These cost estimates are only ranges of probable project costs. All figures are approximations. At the time the implementation of any strategy is considered, a full cost estimate should be sought prior to securing funding.

Mitigation strategies fall into several categories. Following, each strategy is listed with the category to which it belongs. The categories of mitigation strategies are:

1. Prevention
2. Property Protection
3. Natural Resource Protection
4. Structural Projects
5. Emergency Services
6. Public Education and Awareness



CARROLL COUNTY

GOAL 1: Reduce the potential for property damage as a result of dam failures in Carroll County.

Objective 1.1: Reduce the probability of significant flood damage as a cascading effect of a dam failure.

Strategy 1.1.1: Coordinate with the Ohio Department of Natural Resources, Division of Water, in accordance with ORC Section 1512.062, to periodically reclassify any dam within Carroll County as a result of a change in circumstances not in existence at the time of its initial classification to ensure adequate safety according to the potential for downstream damage.

Timeframe:	3 months
Funding (Cost Estimate):	ODNR quite possibly has items such as this budgeted, as this project would fall under the responsibilities of ODNR personnel. (N/A)
Coordinating Agency:	ODNR, Dam Owner
Mitigation Type:	Prevention

Strategy 1.1.2: During all new dam construction, encourage the completion of a critical flood engineering analysis by a professional engineer licensed in the State of Ohio.

Timeframe:	During new construction
Funding (Cost Estimate):	Local Funding (\$50,000 to \$75,000 if a consultant is used.)
Coordinating Agency:	Dam Owner
Mitigation Type:	Prevention

Strategy 1.1.3: Coordinate with the US Army Corps of Engineers to update outdated flood studies encompassing areas affected by the failure or topping of the



Carroll County Hazard Mitigation Plan

Class I dams within and near Carroll County, including, for example, the Atwood Lake Dam, Lake Mohawk Dam, and Stony Lake Dam.

Timeframe:	5 years
Funding (Cost Estimate):	USACOE (Study likely performed by COE staff; therefore, no local funds necessary.)
Coordinating Agency:	USACOE
Mitigation Type:	Prevention

Strategy 1.1.4: Coordinate with the ODNR, Dam Safety Engineering Program to conduct periodic safety inspections of existing dams in Carroll County and garner community support for the removal or repair of dams in disrepair.

Timeframe:	1 year
Funding (Cost Estimate):	No funding required per ODNR's normal operating budget. (N/A)
Coordinating Agency:	ODNR
Mitigation Type:	Prevention

Strategy 1.1.5: Establish more coordination with nearby dam operators to control the flow of water out of dams, to reduce flooding in areas below dams.

Timeframe:	1 year
Funding (Cost Estimate):	Increasing coordination should require no significant additional funding. (N/A)
Coordinating Agency:	County Commission, Dam Operators
Mitigation Type:	Prevention, Property Protection

GOAL 2: Protect Carroll County's agricultural assets from the negative effects of a drought.

Objective 2.1: Increase public awareness as to the agricultural effects of drought, as well as the ramifications to the public water supply.



Carroll County Hazard Mitigation Plan

Strategy 2.1.1: Develop an informational brochure to distribute to local farmers and residents.

Timeframe: 6 months
Funding (Cost Estimate): USDA, if necessary (\$3,000 for publication and distribution, if USDA does not already have such materials printed).
Coordinating Agency: Natural Resource Conservation Service (NRCS).
Mitigation Type: Public Education and Awareness

Strategy 2.1.2: Educate local residents on the benefits of conserving water at all times, not just during a drought.

Timeframe: 1 year
Funding (Cost Estimate): Local Funding, PDM (\$3,000 for publication and distribution of materials)
Coordinating Agency: Local Water Providers, Local Health Departments, Emergency Management Agency
Mitigation Type: Public Education and Awareness

Objective 2.2: Develop methods for the procurement of an emergency water supply.

Strategy 2.2.1: Coordinate mutual aid agreements with water hauling companies to have emergency supplies of water hauled into Carroll County.

Timeframe: 2 years
Funding (Cost Estimate): Coordinating mutual aid agreements will require no funding; however, initiating any sort of agreement may require local funding. (N/A)
Coordinating Agency: Emergency Management Agency
Mitigation Type: Emergency Services



Carroll County Hazard Mitigation Plan

Strategy 2.2.2: Establish procedures to prioritize or control water use during emergency drought conditions.

Timeframe: 5 years
Funding (Cost Estimate): Establishing procedures will require no additional funding; however, code enforcement may require local funding.
(N/A)
Coordinating Agency: County Commission
Mitigation Type: Prevention

GOAL 3: Reduce the potential effects of earthquakes in Carroll County.

Objective 3.1: Educate the public as to the potential for earthquakes in Ohio, specifically Carroll County.

Strategy 3.1.1: Develop an informational brochure explaining the potential for earthquakes, as well as the potential damages from those earthquakes. The brochure should include information pertaining to measures to take to safe-proof homes and other structures from the potential effects of earthquakes.

Timeframe: 6 months
Funding (Cost Estimate): PDM (\$3,000 for publication and distribution of informative materials)
Coordinating Agency: Emergency Management Agency
Mitigation Type: Public Education and Awareness

Strategy 3.1.2: Educate local officials as to conditions in Carroll County that would compound the effects of an actual earthquake, such as soil type, etc.

Timeframe: 1 year
Funding (Cost Estimate): This strategy could be accomplished through a cooperative meeting with EMA staff. (N/A)
Coordinating Agency: Emergency Management Agency
Mitigation Type: Public Education and Awareness



GOAL 4: Protect Carroll County's population from an epidemic.

Objective 4.1: Increase public awareness and knowledge after an epidemic has been declared.

Strategy 4.1.1: Produce public awareness campaigns on local media outlets.

Timeframe:	Immediately following declaration
Funding (Cost Estimate):	PDM, Local Funding (contingent upon local media rates)
Coordinating Agency:	Local Health Departments, Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Objective 4.2: Work with the local health department to limit or eliminate the spread of diseases by reducing the source of the infection.

Strategy 4.2.1: Coordinate with the health department to identify the source of an epidemic and determine appropriate actions for the general public to take to reduce or slow the spread of an epidemic, especially following severe flooding.

Timeframe:	Next epidemic outbreak
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Local Health Departments, Local Hospitals, Emergency Management Agency
Mitigation Type:	Emergency Services

Strategy 4.2.2: Encourage residents to receive immunizations against communicable diseases.

Timeframe:	1 month
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Local Health Departments
Mitigation Type:	Prevention



GOAL 5: Reduce the negative effects of flooding in Carroll County.

Objective 5.1: Lessen flood damage by preserving the natural course of waterways.

Strategy 5.1.1: Clean/drag creeks and streams clearing log jams, trees and shrubs, and sediment bars, and deepen feeder creeks.

Timeframe:	5 years
Funding (Cost Estimate):	USACOE, Local Funding (even small sections of streams could cost as much as \$50,000 to \$100,000)
Coordinating Agency:	USACOE , County Engineer
Mitigation Type:	Prevention

Objective 5.2: Increase coordination among pertinent individuals/groups to mitigate flood hazards.

Strategy 5.2.1: Work with regional planning to post signs denoting hazard areas with respect to flooding, beginning with areas extremely prone to flooding and then extending the project to areas less prone to flooding.

Timeframe:	1 year
Funding (Cost Estimate):	Local Funding (Up to \$100 per sign)
Coordinating Agency:	Regional Planning
Mitigation Type:	Public Education and Awareness

Strategy 5.2.2: Coordinate with FEMA and the county's GIS Mapping System to review and update floodplain maps on a regular basis.

Timeframe:	On-going
Funding (Cost Estimate):	FEMA is currently undertaking a flood map modernization project across the nation. (N/A)
Coordinating Agency:	FEMA, ODNR, County Engineer, Regional Planning
Mitigation Type:	Public Education and Awareness



Carroll County Hazard Mitigation Plan

Strategy 5.2.3: Provide floodplain administrator with the authority to go onto private property.

Timeframe:	1 year
Funding (Cost Estimate):	No additional funding necessary (N/A)
Coordinating Agency:	County Commission, Floodplain Administrator
Mitigation Type:	Prevention

Strategy 5.2.4: Develop specific flood mitigation plan(s) to accompany this mitigation plan for flood-prone areas.

Timeframe:	2 years
Funding (Cost Estimate):	HMGP, FMA, Local Funding (\$30,000 to \$60,000 if a consultant is used)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Prevention

Objective 5.3: Develop, implement, or strengthen regulatory requirements to lessen flood damage.

Strategy 5.3.1: Implement floodplain zoning regulations and building codes.

Timeframe:	5 years
Funding (Cost Estimate):	Developing and implementing codes or zoning requires no additional funding; however, the administrative aspects of code enforcement may require funding. (N/A)
Coordinating Agency:	County Commission
Mitigation Type:	Prevention



Carroll County Hazard Mitigation Plan

Strategy 5.3.2: Consider addressing building materials and the broadening of mobile home tie downs in the development of new floodplain regulations.

Timeframe:	5 years
Funding (Cost Estimate):	Developing floodplain regulations requires no additional funding; however, the administrative aspects of enforcement may require funding. (N/A)
Coordinating Agency:	County Commission, Regional Planning (for technical assistance)
Mitigation Type:	Prevention

Strategy 5.3.3: Participate in the Community Rating System (CRS) and join the National Flood Insurance Program (NFIP) where applicable to reduce flood insurance rates.

Timeframe:	3 years
Funding (Cost Estimate):	Participating in these programs require no additional funding. (N/A)
Coordinating Agency:	Emergency Management Agency, County Commission, Municipal Councils
Mitigation Type:	Public Education and Awareness

Strategy 5.3.4: If funding is available, conduct acquisition and relocation projects in flood-prone areas.

Timeframe:	On-going
Funding (Cost Estimate):	HMGP (approx. \$448,500 for five projects – average value in Carroll County: \$89,700.
Coordinating Agency:	County Commission, Emergency Management Agency
Mitigation Type:	Prevention



Carroll County Hazard Mitigation Plan

Objective 5.4: Reduce flood damage by undertaking structural projects to lessen obstructions to the flow of water.

Strategy 5.4.1: Consider installing, re-routing, or increasing the capacity of existing ditching and culvert systems across roads prone to flooding.

Timeframe:	5 years
Funding (Cost Estimate):	HMGP, CDBG (up to \$20,000 per project depending on the size of the project)
Coordinating Agency:	County Engineer
Mitigation Type:	Structural Projects

Strategy 5.4.2: Consider either decreasing the amount of impermeable surfaces or increasing the amount of permeable surfaces upstream of flood-prone areas, as excessive amounts of paved areas or other such surfaces (impermeable) can increase the amount and rate of water runoff that could be absorbed by natural vegetation (permeable).

Timeframe:	5 years
Funding (Cost Estimate):	CDBG, Local Funding (up to \$100,000 to \$1,000,000; contingent upon the size of the project)
Coordinating Agency:	County Engineer
Mitigation Type:	Structural Projects

Strategy 5.4.3: Employ techniques of erosion control within watershed areas such as proper bank stabilization. For example, consider planting vegetation on slopes, creating terraces on hillsides, using riprap boulders and geotextile fabrics, etc.

Timeframe:	5 years
Funding (Cost Estimate):	FMA, PDM, HMGP (up to \$15,000 to \$30,000; contingent upon the size of the project)
Coordinating Agency:	Regional Planning
Mitigation Type:	Structural Projects



GOAL 6: Lessen hail damage in Carroll County.

Objective 6.1: Improve the delivery and effectiveness of warnings regarding impending hailstorms.

Strategy 6.1.1: Coordinate efforts with the local media to post advance warnings of hailstorms.

Timeframe:	6 months
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Strategy 6.1.2: Encourage the use of NOAA weather radios that continuously broadcast National Weather Service forecasts and provide direct warnings to the public for natural, technological, and man-made hazards.

Timeframe:	3 months
Funding (Cost Estimate):	Encouraging use requires no additional funding; however, purchasing weather radios may require funding. (up to \$2,000 to purchase and install approximately 15 radios)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Objective 6.2: Increase the structural integrity of critical facilities to increase capabilities to withstand significant hailstorms.

Strategy 6.2.1: Evaluate the feasibility of using structural bracing, window shutters, laminated glass in windowpanes, and hail-resistant roof shingles to minimize damage to public and private structures.



Carroll County Hazard Mitigation Plan

Timeframe:	5 years
Funding (Cost Estimate):	Encouraging use requires no additional funding. (N/A)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

GOAL 7: Protect Carroll County's population and assets from an infestation.

Objective 7.1: Increase public awareness and knowledge after an infestation has been discovered.

Strategy 7.1.1: Develop an informational brochure to distribute to local farmers and residents.

Timeframe:	6 months
Funding (Cost Estimate):	USDA, if necessary (\$3,000 for publication and distribution, if USDA does not already have such materials printed.)
Coordinating Agency:	NRCS, Farm Bureau
Mitigation Type:	Public Education and Awareness

GOAL 8: Minimize the effects of land subsidence (including mine subsidence) in Carroll County.

Objective 8.1: Assess the feasibility of undertaking reclamation projects.

Strategy 8.1.1: Coordinate with the Ohio Department of Natural Resources, Division of Mineral Resources Management, Office of Abandoned Mine Lands and Reclamation to undertake reclamation projects if subsidence occurs at a specific location.



Carroll County Hazard Mitigation Plan

Timeframe:	If subsidence occurs
Funding (Cost Estimate):	Coordination should require no significant additional funding; however, a project would require significant funding, primarily from ODNR through the AML&R program. (up to \$2,000,000)
Coordinating Agency:	ODNR
Mitigation Type:	Property Protection

Strategy 8.1.2: Consider developing a land use plan or modifying an existing plan to guide development away from and reduce the density of population in subsidence-prone areas.

Timeframe:	2 years
Funding (Cost Estimate):	Local Funding (\$10,000 to \$50,000)
Coordinating Agency:	County Commission
Mitigation Type:	Prevention

Strategy 8.1.3: Conduct hydrological monitoring to monitor groundwater levels in subsidence-prone areas.

Timeframe:	5 years
Funding (Cost Estimate):	ODNR (\$50,000 to \$75,000)
Coordinating Agency:	ODNR
Mitigation Type:	Property Protection

GOAL 9: Reduce damages from severe thunderstorms in Carroll County.

Objective 9.1: Increase public awareness that a severe thunderstorm is imminent.

Strategy 9.1.1: Coordinate with the National Weather Service (NWS) to warn residents of impending severe thunderstorm conditions.

Timeframe:	3 years
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Emergency Management Agency, NWS
Mitigation Type:	Public Education and Awareness



Carroll County Hazard Mitigation Plan

Strategy 9.1.2: Encourage the use of NOAA weather radios that continuously broadcast NWS forecasts and provide direct warnings to the public for natural, technological, and man-made hazards.

Timeframe:	3 months
Funding (Cost Estimate):	Encouraging use requires no additional funding; however, purchasing weather radios may require funding (up to \$2,000 to purchase and install approximately 15 radios)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Strategy 9.1.3: Encourage the use of the Emergency Alert System (EAS) on commercial radio, television, and cable systems to send out emergency information targeted to specific areas.

Timeframe:	3 months
Funding (Cost Estimate):	The EAS is already an established, available service. Its use requires no additional funding. (N/A)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Strategy 9.1.4: Ensure that surge protection, such as surge protectors and grounding, has been installed on all critical electronic equipment owned by county government.



Carroll County Hazard Mitigation Plan

Timeframe:	1 month
Funding (Cost Estimate):	Local Funding (Many efforts have already been taken to ensure the security and safety of the county's critical electronic equipment. This strategy is primarily maintenance, which will cost little.)
Coordinating Agency:	County IT Staff
Mitigation Type:	Prevention

GOAL 10: Reduce damage from severe wind and tornadoes in Carroll County.

Objective 10.1: Increase public awareness that severe wind and tornadoes are imminent.

Strategy 10.1.1: Coordinate with the National Weather Service (NWS) to warn residents of impending severe winds and possible tornado conditions.

Timeframe:	3 months
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Emergency Management Agency, NWS
Mitigation Type:	Public Education and Awareness

Strategy 10.1.2: Purchase and strategically place tornado warning sirens throughout Carroll County.

Timeframe:	1 year
Funding (Cost Estimate):	Local Funding, PDM (Warning sirens range from \$2,000 to \$5,000 per siren).
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Objective 10.2: Minimize future damage from severe wind or tornadoes throughout Carroll County by increasing control over construction activities.



Carroll County Hazard Mitigation Plan

Strategy 10.2.1: Consider developing zoning and/or strengthening building codes that will regulate the materials used in new construction with respect to design wind speeds.

Timeframe:	1 year
Funding (Cost Estimate):	Developing and implementing ordinances requires no additional funding; however, the administrative aspects of code enforcement may require funding. (N/A)
Coordinating Agency:	County Commission
Mitigation Type:	Property Protection

Strategy 10.2.2: Consider burying power lines to secure uninterrupted power during and following a severe wind or tornado event.

Timeframe:	5 years
Funding (Cost Estimate):	PDM, Local Funding, Power Companies (up to \$15,000,000 to \$20,000,000)
Coordinating Agency:	Power Companies, Emergency Management Agency
Mitigation Type:	Structural Projects

Strategy 10.2.3: Reduce the risk of mobile home damage by suggesting the use of tie-downs with ground anchors appropriate for the soil type.

Timeframe:	6 months
Funding (Cost Estimate):	No additional funding to county agencies. (N/A; however, tie down kits cost approximately \$150 each and usually include four anchors.)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Property Protection



Carroll County Hazard Mitigation Plan

Objective 10.3: Increase public knowledge of what steps to take after a severe windstorm or tornado has occurred.

Strategy 10.3.1: Develop an informational brochure to distribute to local residents.

Timeframe:	6 months
Funding (Cost Estimate):	Local Funding, PDM (\$3,000 for publication and distribution)
Coordinating Agency:	Emergency Management Agency
Mitigation Type:	Public Education and Awareness

Objective 10.4: Conduct an inventory of available shelters within Carroll County.

Strategy 10.4.1: Assess the number, location, strength, and ability of shelters to house residents and withstand high wind speeds. Consider constructing concrete safe rooms near mobile home parks, shopping malls, and other vulnerable public areas.

Timeframe:	2 years
Funding (Cost Estimate):	Local Funding, FEMA (\$15,000 to \$20,000)
Coordinating Agency:	Emergency Management Agency, American Red Cross
Mitigation Type:	Emergency Services

GOAL 11: Reduce the effects of severe winter storms in Carroll County.

Objective 11.1: Protect public investments in community-owned facilities and infrastructure from severe winter storms throughout Carroll County by increasing control over construction activities.



Carroll County Hazard Mitigation Plan

Strategy 11.1.1: Instate countywide zoning, building codes, and other general planning requirements that will regulate the materials used in construction with respect to snow and ice weight.

Timeframe: 5 years

Funding (Cost Estimate): Developing and implementing ordinances requires no additional funding; however, the administrative aspects of code enforcement may require funding. (N/A)

Coordinating Agency: County Commission, Emergency Management Agency (for technical assistance)

Mitigation Type: Property Protection

Strategy 11.1.2: Coordinate with local private contractors to develop mutual aid agreements for emergency snow removal.

Timeframe: 6 months

Funding (Cost Estimate): Developing mutual aid agreements requires no additional funding; however, activating those agreements may necessitate local funding. (N/A)

Coordinating Agency: County Commission

Mitigation Type: Emergency Services

Objective 11.2: Establish heating centers or shelters for vulnerable populations and stranded motorists.

Strategy 11.2.1: Strategically place or identify existing sites that could be used as emergency shelters throughout Carroll County.



Carroll County Hazard Mitigation Plan

Timeframe:	1 year
Funding (Cost Estimate):	Local Funding, FEMA (Performing a survey to identify the shelters could range from \$15,000 to \$20,000; however, costs for stocking shelters are contingent upon the supplies normally kept at the site.)
Coordinating Agency:	Emergency Management Agency, American Red Cross
Mitigation Type:	Emergency Services

GOAL 12: Protect Carroll County's population from heat waves.

Objective 12.1: Increase public knowledge of protective measures to take during heat waves.

Strategy 12.1.1: Develop an informational brochure to distribute to local residents.

Timeframe:	6 months
Funding (Cost Estimate):	Local Funding (\$3,000 for publication and distribution)
Coordinating Agency:	Emergency Management Agency, Local Health Department
Mitigation Type:	Public Education and Awareness

Strategy 12.1.2: Educate local residents on the benefits of conserving water during a heat wave.

Timeframe:	1 year
Funding (Cost Estimate):	Local Funding, PDM (Personnel time involved in the execution of public awareness campaigns is often covered by normal operating budgets. However, if materials are made, up to \$3,000 may be incurred for publication and distribution.)
Coordinating Agency:	Local Water Providers
Mitigation Type:	Public Education and Awareness



GOAL 13: Protect Carroll County's population and forests from wildfires.

Objective 13.1: Educate the public on how to avoid starting wildfires.

Strategy 13.1.1: Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

Timeframe:	1 year
Funding (Cost Estimate):	ODNR, State Parks Commission, if necessary (\$3,000 to \$5,000 if state agencies do not already have materials printed)
Coordinating Agency:	ODNR, State Parks Commission
Mitigation Type:	Public Education and Awareness

Strategy 13.1.2: Encourage residents to inspect and clean their chimneys at least once a year.

Timeframe:	6 months
Funding (Cost Estimate):	No funding necessary. (N/A)
Coordinating Agency:	Emergency Management Agency, Home Owners
Mitigation Type:	Prevention, Property Protection

Strategy 13.1.3: Encourage residents to properly maintain property in or near wild land areas (including short grass, thinned trees, removal of low hanging branches, raking of leaves, and keeping woodpiles and other combustibles away from structures).

Timeframe:	6 months
Funding (Cost Estimate):	No funding necessary. (N/A)
Coordinating Agency:	Emergency Management Agency, Property Owners
Mitigation Type:	Property Protection



Carroll County Hazard Mitigation Plan

Objective 13.2: Reduce the potential for wildfires by limiting the time periods during which burning is permitted to take place.

Strategy 13.2.1: Establish ordinances requiring burn permits and restricting campfires and outdoor burning during unsafe hours in particular seasons, if not already established.

Timeframe:	5 years
Funding (Cost Estimate):	Developing and implementing ordinances requires no additional funding; however, the administrative aspects of code enforcement may require funding. (N/A)
Coordinating Agency:	State Government, County Commission
Mitigation Type:	Prevention

GOAL 14: Reduce or eliminate the negative effects of various other hazards in Carroll County.

Objective 14.1: Minimize disruption to and enhance the existing communications system of Carroll County.

Strategy 14.1.1: Establish a communications system that will allow all jurisdictional fire and police departments to communicate with each other during large-scale emergency situations.

Timeframe:	3 years
Funding (Cost Estimate):	Local Funding, PDM, FEMA (Up to \$1,000,000)
Coordinating Agency:	Emergency Management Agency, Local Fire and Police Departments
Mitigation Type:	Emergency Services

Objective 14.2: Develop a means to ensure safe traffic flow during emergency situations.



Carroll County Hazard Mitigation Plan

Strategy 14.2.1: Install generators to provide a backup power supply for traffic lights at major intersections.

Timeframe:	2 years
Funding (Cost Estimate):	ODOT, PDM (\$1,000 to \$1,500 per site)
Coordinating Agency:	ODOT, County Engineer
Mitigation Type:	Structural Projects

Objective 14.3: Increase the capabilities of local emergency services by undertaking mapping and GIS projects.

Strategy 14.3.1: Continue efforts to map/address the roads in Carroll County to assist emergency services.

Timeframe:	2 years
Funding (Cost Estimate):	Continuing efforts will require no additional funding. (N/A)
Coordinating Agency:	County Commission, Emergency Management Agency
Mitigation Type:	Emergency Services

Strategy 14.3.2: Coordinate county GIS systems and 911 systems to facilitate identification/location of incoming calls and areas to be called when using the reverse 911 system.

Timeframe:	2 years
Funding (Cost Estimate):	Coordination will require no additional funding; however, any software or equipment needed will incur costs. (N/A)
Coordinating Agency:	Emergency Management Agency, County Engineer, 911 Coordinator
Mitigation Type:	Emergency Services



VILLAGES OF CARROLL COUNTY

CARROLLTON

GOAL 1A: Reduce the potential for personal or property damage as a result of a various hazards in Carrollton Village.

Objective 1A.1: Reduce the potential for various hazards in Carrollton Village.

Strategy 1A.1.1: Develop and/or strengthen ordinances addressing construction materials and/or building in areas prone to various hazardous events, e.g. limiting construction in flood prone areas.

Timeframe:	5 years
Funding (Cost Estimate):	Developing ordinances will require no additional funding. (N/A)
Coordinating Agency:	Village Council
Mitigation Type:	Prevention

DELLROY

GOAL 1B: Eliminate or reduce property damage as a result of mine subsidence in Dellroy Village.

Objective 1B.1: Identify all areas in the village that could become subject to property damage as a result of mine subsidence.

Strategy 1B.1.1: Map former mining areas or geologically unstable terrain so that development can be prevented or limited in these areas.

Timeframe:	2 years
Funding (Cost Estimate):	Local Funding. (up to \$6,000)
Coordinating Agency:	Village Council, ODNR
Mitigation Type:	Prevention



LEESVILLE

GOAL 1C: Reduce personal injury and property damage as a result of a dam failure near Leesville Village.

Objective 1C.1: Reduce the probability of significant flood damage as a result of a failure of the Leesville Lake Dam.

Strategy 1C.1.1: Coordinate with the ODNR, Dam Safety Engineering Program to conduct periodic safety inspections of the Leesville Lake Dam.

Timeframe:	1 year
Funding (Cost Estimate):	No funding required per ODNR's normal operating budget. (N/A)
Coordinating Agency:	Village Council, ODNR
Mitigation Type:	Prevention

MAGNOLIA

GOAL 1D: Reduce to potential for flooding along Big Sandy Creek.

Objective 1D.1: Lessen flood damage by preserving the natural course of waterways.

Strategy 1D.1.1: Clean/drag the Big Sandy Creek, clearing log jams, trees and shrubs, and sediment bars.

Timeframe:	5 years
Funding (Cost Estimate):	USACOE, Local Funding (\$40,000 to \$70,000)
Coordinating Agency:	Village Council, USACOE
Mitigation Type:	Prevention



MALVERN

GOAL 1E: Reduce the negative affects of flooding in the Village of Malvern.

Objective 1E.1: Reduce the potential for flooding along critical transportation infrastructure segments in Malvern Village.

Strategy 1E.1.1: Consider constructing floodwalls along Big Sandy Creek and the flood-prone portions of State Route 43.

Timeframe:	3 years
Funding (Cost Estimate):	HMGP (Floodwalls may range from \$75,000 to \$150,000. Cheaper floodwalls using rep rap, etc. could be considered.
Coordinating Agency:	Village Council, ODOT
Mitigation Type:	Structural Projects

Strategy 1E.1.2: Assess the feasibility of conducting bank stabilization projects near the Firehouse Grill and Pub.

Timeframe:	5 years
Funding (Cost Estimate):	HMGP (Stabilization projects may range from \$25,000 to \$100,000)
Coordinating Agency:	Village Council, USACOE
Mitigation Type:	Structural Projects

MINERVA

GOAL 1F: Reduce the negative effects of flooding in Minerva.

Objective 1F.1: Continually monitor water levels on the Still Fork and Big Sandy Creeks.

Strategy 1F.1.1: Consider purchasing and strategically placing stream gauges along portions of the Still Fork and Big Sandy Creeks.



Carroll County Hazard Mitigation Plan

Timeframe:	3 years
Funding (Cost Estimate):	Local Funding (\$5,000 to \$10,000)
Coordinating Agency:	Village Council
Mitigation Type:	Property Protection

SHERRODSVILLE

GOAL 1G: Minimize disruption to and enhance communications capabilities throughout Sherrodsville Village.

Objective 1G.1: Provide for uninterrupted communications throughout the Village of Sherrodsville, during severe weather events.

Strategy 1G.1.1: Consider elevating telephone boxes on poles in flood-prone areas.

Timeframe:	1 year
Funding (Cost Estimate):	Local funding (\$5,000 to \$10,000)
Coordinating Agency:	Village Council
Mitigation Type:	Property Protection

Strategy 1G.1.2: Coordinate with the local cellular provider to install more cellular towers in the Village of Sherrodsville.

Timeframe:	2 years
Funding (Cost Estimate):	Local Funding, Cellular Provider (up to \$50,000)
Coordinating Agency:	Village Council, Cellular Provider(s)
Mitigation Type:	Emergency Services

GOAL 2G: Better equip first response organizations in the Village of Sherrodsville.

Objective 2G.1: Improve emergency response capabilities in Sherrodsville during severe winter weather.

Strategy 2G.1.1: Equip first response units in Sherrodsville with four-wheel drive response vehicles to access individuals in rural areas during severe winter weather.



Carroll County Hazard Mitigation Plan

Timeframe:	6 months
Funding (Cost Estimate):	Local funding (up to \$35,000 for vehicles alone – proper emergency response equipment would cost more.)
Coordinating Agency:	Village Council, Sherrodsville VFD
Mitigation Type:	Emergency Services

TOWNSHIPS OF CARROLL COUNTY

AUGUSTA

GOAL 1a: Reduce the negative effects of flooding in Augusta Township.

Objective 1a.1: Lessen flood damage by preserving the natural course of waterways.

Strategy 1a.1.1: Coordinate with the USACOE to clean/drag portions of Still Fork Creek to clear log jams, trees and shrubs, and sediment bars, and reduce flooding along portions of State Route 9.

Timeframe:	5 years
Funding (Cost Estimate):	Coordination should require no additional funding (Even small sections of streams could cost as much as \$50,000 to \$100,000)
Coordinating Agency:	USACOE, Township Trustees
Mitigation Type:	Prevention

BROWN

GOAL 1b: Reduce the potential for property damage as a result of mine subsidence in Brown Township.

Objective 1b.1: Increase public knowledge as to the risks associated with mine subsidence and actions they can take to safeguard against those hazards.



Carroll County Hazard Mitigation Plan

Strategy 1b.1.1: Develop and distribute an informational brochure to the residents of western Brown Township that addresses the hazards associated with mine subsidence and actions residents can take to safeguard against those hazards.

Timeframe:	1 years
Funding (Cost Estimate):	Local Funding (\$1,000 for publication and distribution)
Coordinating Agency:	Township Trustees
Mitigation Type:	Public Education and Awareness

CENTER

GOAL 1c: Reduce the potential for injuries and property damage as a result of severe winter storms.

Objective 1c.1: Reduce the amount of blowing and drifting snow over the roadways of Center Township.

Strategy 1c.1.1: Consider constructing snow fences or planting rows of trees to serve as living snow fences to limit the blowing and drifting of snow over critical roadways in the township.

Timeframe:	3 years
Funding (Cost Estimate):	ODOT, Local Funding (Up to \$10,000 for professional landscaping; however, township road crews may be able to accomplish this strategy for only the cost of materials).
Coordinating Agency:	Township Trustees, ODOT
Mitigation Type:	Structural Projects, Prevention



EAST

GOAL 1d: Limit the negative affects associated with severe thunderstorms in East Township.

Objective 1d.1: Ensure uninterrupted electrical power during and following severe thunderstorms.

Strategy 1d.1.1: Establish a township forestry program to trim trees and clear debris from utility poles and maintain all public rights-of-way.

Timeframe:	3 years
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Township Trustees, Residents of East Township
Mitigation Type:	Prevention, Property Protection

FOX

GOAL 1e: Reduce the potential for personal injury and property damage as a result of flooding in Fox Township.

Objective 1e.1: Reduce damages to State Route 524 as a result of flooding along the Upper North Fork of Yellow Creek.

Strategy 1e.1.1: Employ techniques of erosion control such as proper bank stabilization, planting vegetation of slopes, creating terraces on hillsides, and the use of riprap boulders and geo-textile fabric, etc.

Timeframe:	3 years
Funding (Cost Estimate):	HMGP, FMA, PDM (up to \$15,000 to \$30,000; contingent upon the size of the project.)
Coordinating Agency:	Township Trustees
Mitigation Type:	Structural Projects



HARRISON

GOAL 1f: Improve the delivery and effectiveness of warning messages.

Objective 1f.1: Provide advanced warnings to the residents of Harrison Township when severe winds and/or a tornado are approaching.

Strategy 1f.1.1: Purchase and strategically place tornado warning sirens throughout portions of Harrison Township.

Timeframe:	1 year
Funding (Cost Estimate):	PDM, Local Funding, (up to \$2,000 to \$5,000 per siren)
Coordinating Agency:	Township Trustees, Emergency Management Agency
Mitigation Type:	Public Education and Awareness

LEE

GOAL 1g: Reduce secondary impacts to health and safety from the cascading effects of flooding.

Objective 1g.1: Limit the amount of debris that can be swept away by floodwaters.

Strategy 1g.1.1: Encourage residents to control and secure debris, yard items, or stored objects (including oil, gasoline, and propane tanks that may be swept away, damaged, or pose a hazard when flooding occurs.

Timeframe:	3 months
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Township Trustees
Mitigation Type:	Prevention



LOUDON

GOAL 1h: Improve the delivery and effectiveness of warning messages related to severe thunderstorms.

Objective 1h.1: Provide advance warnings to the residents of Loudon Township that severe thunderstorms are imminent.

Strategy 1h.1.1: Increase the coverage and use of NOAA weather radios and the Emergency Alert System throughout Loudon Township.

Timeframe:	2 years
Funding (Cost Estimate):	Local Funding (up to \$750 to purchase and install approximately 5 radios; however, the EAS is a service requiring no fee but proper protocol must be followed to activate the EAS.)
Coordinating Agency:	Township Trustees, Emergency Management Agency
Mitigation Type:	Public Education and Awareness

MONROE

GOAL 1i: Minimize the cascading effects associated with dam failures.

Objective 1i.1: Deliver advanced warnings to the residents of Monroe Township of any malfunctions with the Atwood Lake Dam.

Strategy 1i.1.1: Coordinate with Atwood Lake Dam officials to provide notification and warning to the residents of Monroe Township of any failure.



Carroll County Hazard Mitigation Plan

Timeframe:	At times of dam failure possibility
Funding (Cost Estimate):	No additional funding required. (N/A)
Coordinating Agency:	Emergency Management Agency, Township Trustees, Atwood Lake Dam Officials
Mitigation Type:	Prevention, Public Education &

ORANGE

GOAL 1j: Reduce property damage as a result of flooding along Conotton Creek.

Objective 1j.1: Reduce vulnerability of existing assets in Orange Township by participating in buyout projects.

Strategy 1j.1.1: Conduct acquisition and relocation projects in the flood-prone areas of Orange Township.

Timeframe:	3 years
Funding (Cost Estimate):	Local Funding (approx. \$270,000 for 3 properties.)
Coordinating Agency:	Township Trustees, Regional Planning
Mitigation Type:	Prevention

PERRY

GOAL 1k: Reduce property damage as a result of severe wind and tornadoes.

Objective 1k.1: Reduce the amount of material that can be blown about by severe winds and tornadoes.

Strategy 1k.1.1: Encourage residents to secure loose yard materials and patio items indoors or where winds cannot blow them about.

Timeframe:	3 months
Funding (Cost Estimate):	No additional funding required. (N/A)
Coordinating Agency:	Township Trustees
Mitigation Type:	Prevention



ROSE

GOAL 1l: Minimize property damage as a result of mine subsidence.

Objective 1l.1: Conduct a mapping project to identify or geologically unstable terrain in areas formerly mined.

Strategy 1l.1.1: Coordinate with the ODNR to develop a map illustrating subsidence-prone areas to prevent or limit development in those areas.

Timeframe:	1 year
Funding (Cost Estimate):	Coordination will require no additional funding; however, undertaking a project to map subsidence prone areas may require funding. (N/A)
Coordinating Agency:	Township Trustees, ODNR
Mitigation Type:	Public Education and Awareness

UNION

GOAL 1m: Reduce obstacles to facilitate timely and safe evacuations of hazard areas in Union Township.

Objective 1m.1: Take mitigative measures to ensure that Union Township can be evacuated in a timely manner.

Strategy 1m.1.1: Determine if all portions of State Route 332 is adequate to evacuate Union Township in an emergency situation.

Timeframe:	1 year
Funding (Cost Estimate):	No additional funding necessary. (N/A)
Coordinating Agency:	Township Trustees
Mitigation Type:	Emergency Services



WASHINGTON

GOAL 1n: Minimize disruption to and enhance existing communication capabilities in Washington Township.

Objective 1n.1: Provide for uninterrupted communications throughout Washington Township during severe weather events.

Strategy 1n.1.1: Coordinate with the local cellular providers to install more cellular towers in Washington Township.

Timeframe:	2 years
Funding (Cost Estimate):	Local funding, Cellular Provider (up to \$50,000)
Coordinating Agency:	Township Trustees, Cellular Provider(s)
Mitigation Type:	Emergency Services