

BREAKING THE CYCLE



*of Devastation
and Reducing
Damages*

ACQUISITION

DEMOLITION

ELEVATION

RELOCATION

RETROFITTING


The risk of flood has plagued counties throughout Ohio for decades. Among the United States, Ohio ranks sixth in terms of identified flood hazards and eleventh in the number of structures at flood risk.

Case Studies

SOUTHERN OHIO

With the Ohio River skirting the state's southeastern and southern rim, these rankings are not surprising.

The Ohio River drains 204,000 square miles in 14 states, and varying degrees of rain, snow melt, and ground absorption throughout such a wide land range can quickly change conditions. Major flooding occurs annually across the state, with counties to the south seeing even more frequent events. Annual losses due to flooding are estimated to be between \$100 and \$150 million. Since 1964, Ohio has received 28 Presidential disaster declarations, 22 of those for flooding.



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Ohio experiences three types of flooding – flash floods, river basin or riverine, and lakeshore. Flash floods can occur in any season but are more prevalent during spring and summer months. River basin flooding is more common during winter and early spring. These floods can cause a variety of damages ranging from mildew and water damage in basements, to soil erosion, total destruction of homes, businesses and crops, and loss of life. The extent of damage is dependent upon the amount of water deposited, its velocity, how quickly the water is drained, and how effectively the population is warned.

In order to address the issue of flood risk to its population and resources, the State of Ohio has taken aggressive measures over recent years to assess areas of vulnerability and means of lessening the devastating impact of flooding – both human and economic – on those areas. A statewide plan of hazard mitigation planning and implementation has been in operation since 1990. The state has assumed major responsibility for mitigation project development with the federal government under the supervision of the Ohio Emergency Management Agency; and, from 1990 onward, hazard mitigation has been a critical part of every disaster recovery effort.

The State's "Smart Recovery" program is a model for the future, for the state of Ohio and for states around the country. It is an effective, on-going public education campaign designed to raise awareness about disaster preparedness and the value of mitigation. Such awareness, and the actions that result, will go a long way toward breaking the cycle of repeated devastation by flooding.



While many stories exist, the following stories have been chosen as examples of the success of mitigation in southern Ohio. These examples show that investment in mitigation can be fully returned without grant assistance within only two or three subsequent floods – sometimes in just one.

Meigs County

The Village of Rutland, population just under 500, sits five miles from the Ohio River's edge in south central Meigs County. Most of the village properties impacted by flooding are over fifty years old and, because of their proximity to the banks of Little Leading and Beech Grove Creeks, are subject to frequent flash flooding. The two creeks come off the steep Ohio bluffs and meander through the entire floodplain of Rutland often inundating State Route 124 and other emergency access routes. Every flooding incident poses high risk to personal property, community infrastructure, and human life.



The flood of 1997 was one of the largest in 30 years and the second federally declared flood suffered in the county in two years.

The flooding of January 1996 brought in-home water depths ranging from a few inches to a few feet, with extensive basement flooding and wall collapse as well as water on the first floor of many buildings. Seeking to put an end to the damage-repair-damage cycle experienced by homeowners and renters in flood-prone structures throughout Rutland, the village applied for funding through FEMA's Hazard Mitigation Grant Program (HMGP). The proposed project involved acquiring and demolishing 22 structures, elevating nine structures, relocating four structures, and retrofitting two others. The intent was to minimize future loss of property in the village, to lessen the financial impact of future flood claims, and to protect the health and safety of residents at risk. The entire project area was to be located within the floodplain, with ten of the structures in the floodway. Estimated costs of the project were set at \$1,048,870.

The floods came again in early 1997. This time, 90 percent of the village structures were damaged, 12 of them irreparably.

The sewer system was out of service for four days and the plant was inaccessible by road while sewage processors had to be replaced in most homes and businesses. Fire department volunteers spent hours evacuating citizens; the firehouse suffered damage; and the entire town was isolated for 24 hours. Fortunately, no lives were lost. But, the cost of damage to personal property, let alone infrastructure, was in the hundreds of thousands of dollars. There was now cause to extend mitigation plans from the year before to include other properties at risk. In July 1997, the Rutland mitigation project was approved and the HMGP monies awarded in the amount of \$1,048,000. The project was completed in August 1999.

So, when the waters rose again in Rutland in February 2000, things were different.

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Several houses on Depot Street had been elevated and now stood above the 100-year flood level, thanks to the recently completed hazard mitigation project. Lilly Kennedy's home, flooded every year since 1995, was eight feet higher than in 1997 when first floor flooding reached a depth of four feet. The February 2000 floodwater came up three feet around the foundation of Lilly's house but never threatened the interior of her home or her belongings as it had so many times before. "This last time," exclaims Lilly, "I just stood and watched as the water came up, knowing all the time that my son and I were safe."



Right: Lilly and her son view the world and the water from higher up.

Left: Lilly points out where recent flooding would have been before her home was elevated.



Vince Mossman, who lives across the street from Lilly Kennedy, and Tammy Searles, who lives a few houses down on Depot Street, couldn't agree more. "We're more realistic now," they say. "After what we went through in '97, we are really aware of water levels. Now, those of us who were elevated just sit with a smile on our face when the water comes. And, we know it will, again and again."

Several blocks northwest of Depot, on Main Street, former mayor Joanne Eads points out Bicentennial Park, a small tract of green at creekside that had been a homesite just months before. The HMGP project included the

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acquisition and removal of Orlando Andreoni's home at a cost of \$9,000. Now, Mr. Andreoni lives safe and secure on higher ground, while his former land now sits adorned with picnic tables and barbecue grills for the citizens of Rutland to enjoy at their leisure.

Joanne Eads estimates that each property included in the project would have incurred \$10,000 to \$15,000 of damage from the flooding that occurred in February. Instead, little or no damage was suffered; thousands of dollars were saved; and, the people of Rutland can put their time and energy into community improvement, instead of flood cleanup. "We're looking at the possibility of a dike being put in and may apply for assistance to clean up log jams along the creeks," says Eads. The village also received \$2.1 million to reclaim nearby land after it was strip-mined.

"Around here, floods are common, just a way of life for us. But, after 1997, we all look at it really different," says Eads with a smile. "And, now, everyone has insurance!"

Stories from Rutland

Kenny and Tammy Searles have spent years cleaning up after floods. The 1997 event did so much damage they received a FEMA housing repair grant in the amount of \$12,511, and had to take out a U.S. Small Business Administration loan of \$52,000. Their house was elevated for a cost of \$32,700. They feel they'll never be wet again.

The return on mitigation investment? Avoiding future housing repair grants if there were two floods similar to '97 and one less severe event.

Lilly Kennedy lives with her son in a two-story frame home on Depot Street. Their basement flooded year after year, but water rose to a depth of over three feet on their first floor in both 1996 and 1997. After the 1997 flood Lilly received \$19,595 in federal and state government assistance, of which over \$9,000 was housing repair. Over the years, she figures that she had spent more than \$10,000 out-of-pocket for clean-up, repair and replacement.

The Kennedy home was elevated in 1998 above the 100-year flood level for a cost of \$18,700. No floodwater entered the home in February 2000. Former Mayor Eads estimates property damage would have been between \$10,000 to \$15,000. If Mrs. Kennedy would have again needed her past repair money, it would have come to half of the elevation cost. One more flood could see a full return on the mitigation dollars.

Clermont County

Clermont County is located along the Ohio River in the southwest quadrant of Ohio. Clermont is one of the fastest growing counties in the state with a population in 1998 of more than 172,000 and an annual growth rate of 18 percent.

Flooding is the number one natural hazard for Clermont. The flood of 1997 was one of the largest in 30 years and the second federally declared flood suffered in the county in two years. Because of high flood risk and past events that have impacted the county, its residents and its businesses, Clermont has taken aggressive actions to alleviate further damage from flooding.



Homes inundated by flood waters.

Neville is a small community, population 250, resting on the Ohio River banks just 40 miles west of Cincinnati. The town boundaries include some 45 acres with all but a small portion in the floodplain. One of the oldest villages in Clermont County, Neville was founded in 1808 and was the site of the first land survey in the Northwest Territory. By 1837, there were numerous businesses and homes in the village. Though it fell victim to numerous floods in the 1800s, Neville maintained its economic viability until 1937 when a flood exceeding the 500-year frequency level destroyed most of the village structures. Since that time, flooding has recurred almost annually.

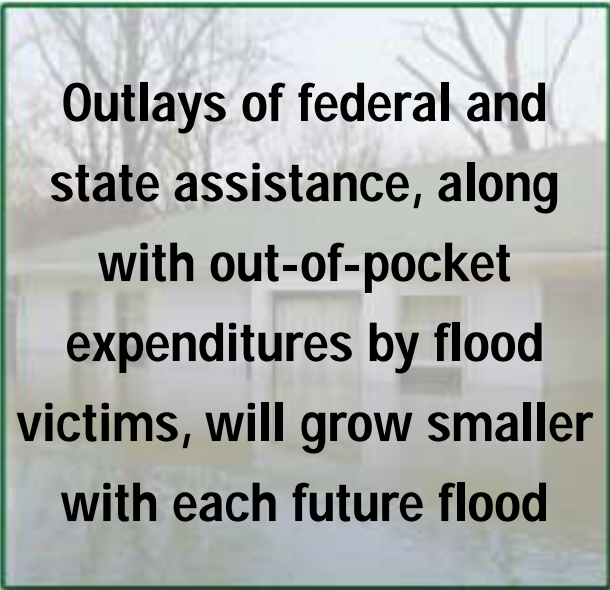
The 1937 flood was the beginning of a downward spiral of economic conditions in Neville. Today, the community consists of only 73 residential properties and one convenience store. The residents of the town range in age from young adults with children to elderly, retired couples. Sixty-seven percent of these are in the low to moderate-income category. Based on 1995 tax records, the entire community had an appraised value of \$770,000. Repetitive flooding has fueled economic downturn with depreciating property values, annual expenditures for flood

repair instead of capital improvement, and individual incomes put toward repair and replacement instead of new purchases or savings. This combination of factors, along with the devastation of floods in 1996 and 1997, made the need for mitigation a necessity if the Village of Neville were to be saved.

Following the flooding in January 1996, the Village established an ongoing flood committee and study process that resulted in the submissions of an application for HMGP funding one year later. That application proposed the acquisition of 25 flood-prone structures and the elevation of two. As proposed, the project would eliminate much of the risk of future flood damage and bring the village into compliance with the National Flood Insurance Program (NFIP) regulations.

Neville had been an NFIP participant since 1978. The majority of property owners had obtained flood insurance coverage, and the village government had ongoing procedures in place to monitor local development and its compliance with local flood damage prevention regulations. In the aftermath of flooding in March 1997, the mechanisms were in place to amend the earlier project application, assure NFIP compliance, and move quickly toward project implementation once approval was granted. As a result, all elevations had been completed and all acquisitions of property from willing owners had been completed by the time the water rose once again in February 2000. Had the water risen an additional 12 inches, substantial damage and loss would have occurred once again in Neville. Due to successful mitigation, no damages or losses were incurred.

As a result of Ohio's commitment to hazard mitigation and to partnering with federal and local agencies in the planning and implementation of numerous projects, the flooding of February 2000 was seen, and experienced, in a changed way.



Outlays of federal and state assistance, along with out-of-pocket expenditures by flood victims, will grow smaller with each future flood