

T H E R I S K I S R E A L

Mitigation Works



Mitigation Best Practices

Public and Private Sector Best Practice Stories for All Activity/Project Types in Ohio relating to All Hazards

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FEMA

Table of Contents

Rossilli's Restaurant Saved by an Inch of Prevention	1
Silver Jackets: Bringing Agencies Together for the Benefit of Communities	2
Acquisition in Cambridge Residents Like "View From the Top"	3
Athens County Retrofit Homeowner Pleased With Result	4
Community Buy-In Helps City of Jackson Benefits	5
Miller South Chose Elevation Lawrence County	6
Elevate Above Flooding Disaster Pomeroy and Rutland Benefit	7
Small But Determined Village of Rarden, Ohio	8
Two Birds, One Stone Village of Aberdeen, Ohio	9
Future Disaster Damage Abated Morgan County	10
Home Elevation in Ohio Once is More Than Enough	11
New Richmond, Ohio, Acquisitions HMGP Acquisitions	12
Breaking the Cycle of Devastation Reducing Damages in Southern Ohio	13
Smart Recovery Mitigation Campaign Ohio's Mitigation Awareness Program	14
Village of Fort Recovery Acquisition and Relocation	15



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Rossilli's Restaurant Saved by an Inch of Prevention

Findlay, OH - Two days after the rampaging Blanchard River overflowed its banks last August and submerged downtown Findlay under more than a foot of water, Meg Rossilli stood in front of the restaurant she owns with her brother and her husband.

Located less than two blocks away from the bridge on Main Street that crosses over the river, Rossilli's Restaurant, like many of the stores and offices in the neighborhood, could have sustained major, even bankrupting, damages from the 100-year flood.

In this case, the difference between disaster and setback was a matter of a single inch.

"When we moved to our new location (in 2003), we wanted to raise up the dining room floor by a foot," says Meg's brother and co-owner, Gary. The contractor and the city suggested raising the floor 13 inches instead of 12, in addition to using a more expensive, pressurized water-resistant wood. Being concerned with the additional cost for both modifications, they hesitated.

But ultimately they decided to play it safe and spend the money not only on the extra height, but also on the pressurized water-resistant wood, in both the dining room and the kitchen in the back.

Four years later, a summer storm settled over northwest Ohio, dumping up to 9 inches of rain in a single day on the farms and small towns. Creeks, streams, drainage systems, rivers – they all overflowed in the predominantly flat region.

Down Main Street from the river, the Rossillis and Mike Eynon, Meg's husband and business partner, piled sandbags three feet high in the narrow alcove of their entrance. Flood waters came in anyway, and the bar area in the front got flooded.

Flood water crept up the ramp to the dining room, but stopped less than an inch from the raised floor.



Hancock County,
Ohio



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Retrofitting, Non-structural

Primary Funding:

Property Owner, Commercial



FEMA

Silver Jackets: Bringing Agencies Together for the Benefit of Communities

The State of Ohio - Many natural disasters of recent times have highlighted the need for government agencies to work together not only in the response and recovery phase of the disaster cycle, but also in the pre-disaster mitigation phase. The Silver Jackets Program aims to accomplish that through providing a more formal and consistent strategy for implementing an interagency approach to planning and applying measures to reduce the risks associated with natural hazards.

Essentially, this program proposes establishing an interagency team for each state, comprised of the Federal Emergency Management Agency (FEMA), the US Army Corps of Engineers (USACE), the State National Flood Insurance Program (NFIP) coordinator, and the State Hazard Mitigation Officer (SHMO) as standing members and lead facilitators. This increased collaboration between federal and state level agencies intends to find more ways to leverage resources between agencies, improve public outreach in risk management, and create a mechanism to collectively solve issues through familiarity with other agencies' procedures and better interagency communication.

Now that it has been active for over a year in the State of Ohio, the Silver Jackets Team has enjoyed some positive results. Though initially hesitant, the State of Ohio now fully endorses the team which has received praise from elected officials. Another important outcome of the project was the discovery of the amount of data available. Several agencies contributed mapping and GIS information, resulting in new sources of information and opportunities becoming available. Finally, the improved communication between agencies has resulted in a better understanding of each agency's programs and resource constraints.

While the Silver Jackets Program will evolve over time, its initial test run in Marietta has proven successful in achieving the goals it set forth of increasing communication between government agencies for the benefit of states and communities.



State-wide,
Ohio



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Training

Primary Funding:

Other FEMA funds/ US Department of Homeland Security



FEMA

Acquisition in Cambridge Residents Like "View From the Top"

Cambridge, OH - "It was a bad situation turned good," said Ron LePage, a buyout participant, in Cambridge, OH. Cambridge, with a population of 13,000, sits at the foothills of the Appalachian Mountains in Guernsey County. Homes are nestled in the rolling terrain, a dream for those at the peak, but the runoff from heavy rainfall plagues homes at the lower elevations. The acquisition project primarily focused on 60-65 homes suffering from decades of loss due to repetitive flooding. In the past decade Guernsey County has endured three Presidential Declared Disasters. The most severe flooding in recorded history occurred five years ago. Relentless storms pounded the area on June 27, 1998 with the floodwaters cresting on June 30th. The waters didn't recede to below flood stage until July 4th.

In its wake, the flood left more than 100 residents with extensive damage to their homes. "It was devastating," said Michael Coulter, who had two inches of water in the top level of his tri-level home. The lower levels were completely immersed. "I don't know what we would have done without FEMA."

The stress associated with the flood recovery and the fear of impending storms were the deciding factors for many homeowners who elected to participate in the buyout. Ron LePage and Peter Blazvick lived in the low-lying neighborhood, which had the largest number (26) of acquired and (4) retrofitted properties. The source of the flooding was Gordon's Run, a creek near their homes.

The Hazard Mitigation Grant Program (HMGP), activated in a Presidential Disaster Declaration, is designed to relieve communities of future flood losses and give homeowners of flooded properties options. The community of Cambridge chose to apply for these funds and use them for an acquisition/retrofitting project. Participation in the buyout process is voluntary, but homeowners are required to go through a cost benefit analysis to justify their involvement in the project. These funds would be used to purchase the properties and demolish the structures. Then, the property would be left in perpetuity to the community as open space, never to be built upon again. Other homeowners took the option of retrofitting the flooded portions of their home to minimize future damage.

In 1998, City Engineer Jeanette Wierzbicki received notice from the State that mitigation funding was available through the HMGP to purchase homes that sustained repetitive flood damage. She was the initial driving force behind the effort.

On January 3, 2004, severe storms poured five inches of water in 72 hours over large portions of the State. Temperatures plummeted to below zero, warmed and again returned to dangerously cold. Guernsey County was one of the 14 designated counties included in the Presidential Declaration resulting from this severe storm and rain event. The mitigation efforts begun in 1998 proved successful. Several of the acquired properties (now empty lots) had standing water from the rain.

Coulter, Blazvick and LePage expressed concern for those who remain in their former neighborhoods. These three homeowners, pleased with their participation in the project, have relocated in Cambridge to homes on higher ground.



Guernsey County,
Ohio



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Athens County Retrofit Homeowner Pleased With Result

Athens County, OH - Kara Edmonds is Community Development Coordinator for the Tri-County Community Action Agency serving Athens, Hocking and Perry counties in southeastern Ohio. Athens County suffered isolated flooding along several streams during the March 1997 disaster, in areas that had been damaged in two previous declared floods since 1990.

Edmonds was designated by county commissioners to work with FEMA and OEMA in pursuing mitigation assistance for repetitively damaged properties, including two homes bordering Sugar Creek within two miles of the Community Action offices on State Route 550. The owner of one of those residences is Ohio University journalism professor Cassandra Reese.

In the aftermath of previous flooding into the "walk-out" lower level of Reese's hillside home, she had invested more than \$22,000 to erect a three-foot-high floodwall around the rear and side of the house, replace damaged lower-level drywall, jack up the slab floor, elevate her water heater and washer/dryer and add a brick channel to carry runoff away from the house and down her driveway.

But when the March 1997 downpour created unprecedented runoff, Reese found that three feet of water had found its way around and under her precautions into her lower level, ruining a heat pump and electrical breaker box and causing structural damage to deck supports. Her next step was to seek help through Kara Edmonds and the Hazard Mitigation Grant program. Edmonds prepared and submitted a successful grant application and helped Reese get architectural advice through the Ohio Emergency Management Agency Mitigation Branch.

They determined that during extremely heavy rains, water near the floodwall accumulated so rapidly that it backed up, creating a pond under Reese's deck from which it seeped under a rear doorway and into the lower level.

In 1998, with the help of a \$16,000 mitigation grant, Reese was able to retrofit her home by having her deck partially rebuilt, a waterproof rear door installed that would not allow high water to enter the house; a one-way check valve installed in her flood wall that that would allow water to flow only away from the house; her heat pump condenser elevated on a masonry platform to above the peak flood level; and the electrical circuit box and meter moved from the rear to the front wall of her lower level and elevated to six feet above the floor.

While flood waters haven't reached or exceeded the 1997 levels since then, Reese said she is confident her flooding problems are solved and was very pleased with the attitude and performance of Edmonds and the OEMA team. "After everything I had tried, they gave me good advice, and the additional work they paid for was done well. I'm in no hurry to have the water come up high enough to test it all again, but I'm comfortable that I won't be looking at major repair bills if we do have another flood." Edmonds reports that, while neighbors were out sweeping standing water from their driveways and patios after recent heavy rains, she has seen Reese standing on her deck smiling while the new check valve keeps her high and dry.



Athens County, Ohio



Quick Facts

Sector:

Private

Cost:

\$16,000.00 (Estimated)

Primary Activity/Project:

Retrofitting, Structural

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Community Buy-In Helps City of Jackson Benefits

Jackson, OH - Unlike many of the communities which suffered major damage in the March 1997 flood, Jackson, Ohio, (population 6,700) is located more than 30 miles from the Ohio River in the state's hilly and scenic southeastern corner. The sources of its recurring flood problems are Horse Creek and Salt Lick Creek, two usually unthreatening streams that carry runoff from nearby high ground through the town on their way to the Ohio.

When the area around Jackson receives unusually heavy rains, as it did on March 1-2, 1997, both narrow, winding creeks often receive more rapid runoff from miles of surrounding hillsides than their banks can contain. Drainage and stream flows are impacted to some degree by upstream stretches of land formerly used for logging and strip mining, and the creeks also receive heavy runoff from recently widened stretches of U.S. Route 35--now a major four-lane highway.

Homes in several low-lying and poorly drained areas of the town suffered considerable damage in 1963, 1968 and again in 1975 when sustained spring rains took the creeks out of their banks. But according to Jackson city building projects coordinator Story Cool and Mayor Tom Evans, the March 1997 downpour and its aftermath caused "the worst flooding anyone around here can remember." One often-damaged area, roughly a half-mile square along Central Avenue and Freeman Street that suffered street flooding and standing water after even normal rains, was under so much moving water for so long during the '97 event that dozens of homes were destroyed or damaged beyond repair.

"FEMA and OEMA recovery teams arrived while the water was still receding, and set up a Disaster Recovery Center at the local Odd Lots store," said Evans. Once streets were re-opened, utilities were back in operation and debris removal underway, Evans said he and his service director met with OEMA Mitigation Branch staff in Columbus to learn about the HMGP program.

Evans noted that, at an early point in the planning process, several members of the committee strongly advocated that the best mitigation strategy would be to dredge the creek beds at several choke points. "We had experts from the Department of Natural Resources and Army Corps of Engineers come to the next meeting and listen to their suggestions. They explained that dredging wouldn't prevent flooding after heavy rains...just move it downstream another few hundred yards," said Evans. "They told us the real problem was that these creeks are going to overflow periodically no matter what you do, and that our most damaged neighborhood was going to keep on getting flooded because it sits smack in the middle of the natural floodplain."

After they got that information and were able to ask a few questions, Evans said even the strongest advocates of dredging backed away from that alternative and ultimately supported property acquisition as the best course of action.

The City of Jackson received a \$288,000 HMGP grant and state and local matching funds that allowed it to acquire 4 vacant lots and permanently remove 31 repetitively damaged structures from the flood-prone area along Central Avenue and Freeman Street.



Jackson County, Ohio



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Miller South Chose Elevation Lawrence County

Lawrence County, OH - 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."

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.



Lawrence County,
Ohio



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Elevation, Structural

Primary Funding:

Local Sources



FEMA

Elevate Above Flooding Disaster Pomeroy and Rutland Benefit

Salisbury, MD - Salisbury Township is home to the river-crossing town of Pomeroy, population 2,200, near the southeastern corner of the state where U.S. Route 33 crosses the Ohio River into West Virginia.

Similar to most river towns, Pomeroy and the surrounding township have dealt with high water many times in their nearly 20-year history. Unfortunately, cycles of drought followed by heavy rain, deforestation of some area hillsides and increased runoff from recently widened state and federal highways contributed to even more frequent local flood damage during the late 1990's.

The village of Rutland is about five miles west of Pomeroy. It also has a history of flood damage, but the culprits there are Little Leading and Beech Grove Creeks, which carry runoff from the steep bluffs above the Ohio Valley through the village of about 500 residents.

When flash flooding occurs along the creeks, it often blocks State Route 124, the main east/west highway, and other emergency routes; and poses a serious safety threat to local residents, nearby property and public infrastructure.

The drenching rains and excessive runoff of March 1-2, 1997, hit Pomeroy and Rutland residents hard...but that disaster also provided an opportunity for some local families to escape the repeating cycle of damage, repair and more damage through funding for post-recovery mitigation projects. Those projects included elevation of 18 homes that had suffered significant damage in several previous floods.



Meigs County,
Ohio



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Elevation, Structural

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Small But Determined Village of Rarden, Ohio

Rarden, OH - Rarden, population 176, is a classic "wide spot in the road" rural village that straddles an eight-block stretch of State Route 73 in western Scioto County, about 25 miles north of the Ohio River. Other than its proudly up-to-date volunteer fire station, the village's only distinguishing feature used to be its picturesque location in a natural hollow at the convergence of Rarden Creek and Jessie's Run. Now there's also a creek-front village park.

In March 1997, when two days of non-stop downpours and runoff from surrounding hills turned both local streams into raging rivers, many of Rarden's 60-some households suffered basement flooding or worse. Road closures shut off the village from outside help for two days and loss of water and electric service made life miserable for most residents. But the danger and loss to Copas and her neighbors in a low-lying residential area near the creeks was infinitely worse. They awoke early on the second morning of storms barely in time to escape from a rapidly expanding "lake" of floodwater erupting from the creek bed. By the afternoon of March 2, the water had reached a depth of 10 feet - submerging every structure within 200 yards of the creek beds nearly to the level of first floor ceilings.

Village Mayor Anna Gardner, who was flooded out of her own home and lived for weeks in a second-story room above a garage, worked closely with county and local safety officials over the next several days to help re-open roads, get rescue and recovery aid to those who needed it and provide daily meals for the whole community at the fire house until utility service was restored.

Volunteers, including the Red Cross and a Boy Scout troop from Granville, Ohio, arrived within days of the flood to bring food and drinking water and help with clean up and debris removal. Most village residents who suffered damage, including Gardner, eventually were able to repair and restore their homes to livability with help from FEMA emergency grants and/or loans from the U.S. Small Business Administration. But post-disaster assessments found that certain homes in the creek-front neighborhood were beyond repair.

In late March Gardner received a phone call from the Scioto County Emergency Management Agency, inviting representatives from Rarden to attend a county-wide meeting with FEMA and OEMA staff to help local officials learn about mitigation and the HMGP grant process.

"We knew what a desperate situation the flooded-out families were in, and we also knew we had a chance for the village to avoid future rescue and recovery operations and save thousands of tax dollars that would be wasted to repair or rebuild houses on that land," Gardner said. "We decided on the spot that we'd do everything possible to get a grant. In fact, we sat down and completed a pre-application form right there before we left the meeting."

An HMGP grant of \$158,000 and state/local funding totaling \$71,000 were approved for the acquisition of four homes, one mobile home and one vacant lot in the flood-prone creek front area.



Scioto County,
Ohio



Quick Facts

Sector:

Private

Cost:

\$229,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Two Birds, One Stone Village of Aberdeen, Ohio

Aberdeen, OH - Ohio River flooding is nothing new to the village of Aberdeen and its population of 545. Before March 1997, the historic riverfront community about 50 miles east of Cincinnati had lived through five major 20th century flood events (1913, '36, '37, '59 and '96).

While past efforts had been made to reduce the community's exposure to repetitive damage, including adoption of a local floodplain ordinance in 1983, Aberdeen had an obvious "Achilles heel" in terms of repeated property damage, danger to residents and public safety forces and negative impact on the community's appearance and quality of life.

That vulnerable spot was a stretch of downtown river frontage roughly 10 blocks long by three blocks deep which slopes dramatically down from the village's main street (U.S. Route 52) toward the Ohio River. For the last 100-150 yards before the river bank, the hillside flattens into a level plain 8-10 feet below the Base Flood Elevation (100-year flood level). As a practical matter, during periods of heavy rain or when the river begins to escape its banks, this low-lying area functions as a natural drainage basin which can fill very rapidly with several feet of water.

According to current Aberdeen Mayor Billie Eitel, who took office in 2000, local safety forces and volunteers had been called out on numerous occasions prior to 1997 to rescue residents of this area from rising water and tow mobile homes to safer ground.

Because of the unprecedented speed with which runoff accumulated in March 1997, only a handful of mobile homes could be removed from the riverfront area before it became impassable. Virtually all of the three dozen housing units in the low-lying area were destroyed or significantly damaged by rampaging floodwaters as the Ohio surged out of its banks during the next several days.

During FEMA-assisted local recovery efforts, village officials were put in contact with the OEMA Mitigation Branch and briefed on the availability of federal hazard mitigation grants. In discussing the possibilities with area residents and developing a local HMGP proposal, it became clear to community leaders that they had a unique opportunity to "kill two birds with one stone" through a property acquisition project that would: a) eliminate most structures from the riverfront area and b) convert the village's "front yard" along a scenic stretch of the Ohio from an unsightly jumble of substandard housing into a ¾ mile long riverfront park.

While state and federal officials approved Aberdeen's grant proposal in early 1998, the village and its leaders encountered delays and difficulties in implementing the buyout project.

While a few isolated homes still remain in the mitigated area, by early 2002 Mayor Eitel proudly pointed out a new volunteer-constructed (and flood resistant) gazebo that serves as a bandstand for free summer concerts; a string of new merchant-donated riverbank park benches and a grassy expanse of new public parkland that stretches from the eastern edge of the business district to a pre-existing municipal boat dock and children's playground several blocks away.



**Brown County,
Ohio**



Quick Facts

Sector:

Public/Private Partnership

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Future Disaster Damage Abated Morgan County

Morgan County, OH - When it comes to repairing or replacing disaster-damaged infrastructure, federal and state recovery officials look for cost effective opportunities to reduce damages during future events. Such was the case when the Morgan County Highway Department applied for funding to replace a twin culvert system. The culvert system became overwhelmed by Hurricane Ivan floodwaters in September 2004, which washed out the roadbed of Compressor Road north of Marion Township, Morgan County.

Extra funds were dedicated to build one large, arched culvert and repair the roadbed to prevent flooding in the future. The work was done just in time. When floods hit in January 2005, many roads in the area were heavily damaged but the new culvert performed up to expectations and Compressor Road at this site came away unscathed.

This was all made possible by Morgan County becoming eligible for the FEMA and Ohio Emergency Management Agency (Ohio EMA) Public Assistance (PA) program under a Presidential declaration of a major disaster for that flood. The PA program, administered by the state, provides reimbursements to state agencies, local jurisdictions and certain non-profit organizations that provide a government-like service for eligible disaster-related costs and damages. Services include debris removal, emergency protective measures, and repair and restoration of disaster-damaged public infrastructures. FEMA provides 75 percent reimbursement of the eligible costs.

Under one section of the PA program, administrators are empowered to make additional obligations of funding for a project that meets the program mitigation funding criteria if those mitigation measures are cost effective. The Marion Township Compressor Road culvert replacement met these criteria. In most cases, PA repair and restoration funding brings damaged infrastructure back to pre-disaster conditions.

One major FEMA and Ohio EMA Public Assistance program goal is to mitigate, wherever it is cost effective, when restoring damaged infrastructure so the repaired facility is better able to withstand future disaster damages. A little extra money spent now may save untold funds later. Such was the case with the Compressor Road repairs.

Altogether, it would cost about \$3,200 to replace the culverts and roadbed to pre-disaster conditions. For a little more than \$6,000, an arched 85-inch by 54-inch culvert replaced the twin culverts.

"By adding extra funds to provide a larger culvert, we believe that the culvert and roadway will have a much better chance of not being damaged in a similar flooding event," said FEMA's Region V Acting Regional Director Janet Odeshoo.



Morgan County,
Ohio



Quick Facts

Sector:

Public

Cost:

\$6,000.00 (Estimated)

Primary Activity/Project:

Flood Control

Primary Funding:

Other FEMA funds/ US Department of Homeland Security



FEMA

Home Elevation in Ohio Once is More Than Enough

Muskingum County, OH - Once was more than enough for the McDonoughs. Jim and Carol McDonough bought a summer/weekend, getaway modular home about 100 feet from the Muskingum River in Blue Rock, Ohio because of its sweeping river view and it seemed to sit above most of the river flooding that occurs in this area, Ms. McDonough said. "The structure is a 26 by 50 foot, wood frame house", James McDonough said. It's about 10 years old.

"Then came the January 2005 flooding, the highest in 50 years according to the locals" said Ms. McDonough. The McDonoughs ended up with four inches of water on their first floor. "We had to tear out our carpet and insulation. It was a mess", said Jim McDonough. "I estimate we had about \$5,000 in damage. In addition to the monetary cost, there also was the loss of use and time spent cleaning up." They decided they did not want to go through that again. "We chose to elevate", Ms. McDonough said. "Since this was the highest water in 50 years, and we had four inches on our first floor, we decided to go up 28 inches higher than the four courses of concrete blocks."

James McDonough also went on to the Internet and visited the Ohio Department of Natural Resources. "I found they had the base flood elevation for this area on their site. It is 25 feet. I elevated so I would be a couple of feet above that" McDonough said. The base flood elevation determines the extent a 100-year flood (a flood that has a one percent chance of occurring in a given year) will rise to in a given area. Contractors were hired to lift the home by installing piers four concrete courses high under the home and then set the home back on the piers.

"I was fortunate with my contractor" McDonough said. "He had done other work for me. When I broached the elevation project to him, he said he could do it." The McDonoughs are well satisfied with the finished project.

The McDonoughs think the elevation will prove a good investment. "It cost us \$8,000 for the elevation work" McDonough said. But when the Muskingum River rises again, as it does every year says Carol McDonough, "those 32 added inches should keep us high and dry." Based on their costs and losses from this event, they believe the work will pay for itself if water from the next two floods like the January 2005 flood does not reach the structure's first floor. This is what is known as mitigation; taking steps now to reduce the chances of sustaining future disaster damages.

"We commend the McDonoughs for elevating their structure. They took responsibility for themselves and used their own resources to protect themselves from future flooding" said Acting Regional Director Janet M. Odeshoo for FEMA Region V.

The State of Ohio Emergency Management Agency (Ohio EMA) administers the hazard mitigation program. Ohio EMA Executive Director Nancy Dragani said all too often folks in harm's way wait for the government to solve their problems, but many times the solution is in their own hands. "The McDonoughs are a tremendous role model for what can be done with a little money and lots of gumption and will."



Muskingum County,
Ohio



Quick Facts

Sector:

Private

Cost:

\$8,000.00 (Actual)

Primary Activity/Project:

Elevation, Structural

Primary Funding:

Homeowner



FEMA

New Richmond, Ohio, Acquisitions HMGP Acquisitions

New Richmond, OH - New Richmond, a small, historic Ohio village about 20 miles upriver from Cincinnati on the Ohio River, is no stranger to flooding. Its flooding history is most eloquently told in pictures.

New Richmond is also a town of resilient Ohioans who want to keep their history alive and thriving. So they looked for ways to learn from the past and stop the cycle of destruction and reconstruction.

During the 1996 and 1997 floods, a new way of dealing with the aftermath of flooding and other disasters had come into being – the Hazard Mitigation Grant Program (HMGP). Initiated by the Department of Homeland Security’s Federal Emergency Management Agency (FEMA) and administered by state partners such as the Ohio Emergency Management Agency (Ohio EMA), HMGP provides funding for projects that will reduce damages from future disasters.

FEMA provides 75 percent of HMGP funding and provides technical assistance to the states in implementing an HMGP project. The states administer HMGP and determine what type of projects (i.e., acquisitions or elevations) will be funded. In acquisition and relocation projects, the properties acquired are turned into green space in perpetuity.

New Richmond applied and became a participant in HMGP acquisitions projects based on January and June floods in 1996 and a March flood in 1997. Altogether, the projects acquired 43 structures, the lots they were located on and five bare lots for about \$1.9 million. These repetitively damaged structures permanently were removed from harm’s way and the village now has a green space along the river that has become a village gathering point.

While the HMGP projects were a boon to New Richmond, it also came - as any new government program would - with its own issues to meet and overcome.

The experiences of New Richmond Village Administrator David Kennedy, who was new to the village at the time of the 1997 flood, is illustrative of the challenges an administrator would face with the HMGP program. These challenges also were met by constructive solutions that may help other HMGP project coordinators deal with issues that crop up.

New Richmonders know the Ohio River will rise again and that parts of New Richmond will flood when it does. But because of HMGP and other local initiatives, New Richmond is much better prepared to deal with flooding than ever before. Mitigation works.



Clermont County,
Ohio



Quick Facts

Sector:

Private

Cost:

\$2,300,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Breaking the Cycle of Devastation Reducing Damages in Southern Ohio

Meigs County, OH - Since 1964, Ohio has received 28 Presidential disaster declarations—22 of which were for flooding. To address the issue of flood risk, the State of Ohio has taken aggressive measures to assess areas of vulnerability and reduce the impact of flooding to those areas.

In 1990, Ohio implemented a state-wide hazard mitigation plan. The state has developed numerous mitigation programs and projects in conjunction with the federal government, under the supervision of the Ohio Emergency Management Agency. The acquisition project in Meigs County demonstrates that an investment in mitigation can be fully returned within only one or two subsequent floods.

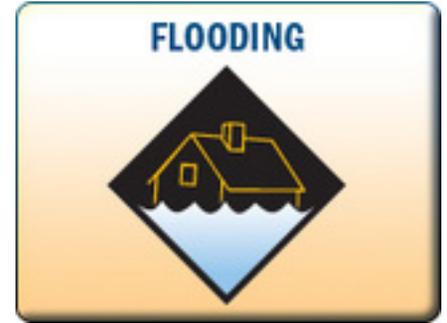
The Village of Rutland sits five miles from the Ohio River's edge in south central Meigs County. Most of the village properties were over 50 years old, and most were susceptible to flash flooding from nearby creeks. The January floods of 1996 prompted the village to apply for FEMA's Hazard Mitigation Grant Program (HMGP) to fund an acquisition project.

The project involved the acquisition and demolition of 22 structures, elevating nine structures, relocating four structures, and retrofitting two structures. The estimated cost was just over \$1 million. Although the project was approved in 1997, the area was subjected to heavy flooding prior to the start of the project, which was completed in 1999.

Thanks to the 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. When flooding occurred again in February of 2000, floodwater came up to nearly three feet around the foundation of Lilly's house, but never threatened the interior of her home or her belongings. "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."



Multiple Counties,
Ohio



Quick Facts

Sector:

Public

Cost:

\$1,048,870.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Smart Recovery Mitigation Campaign Ohio's Mitigation Awareness Program

The State of Ohio - The Ohio Emergency Management Agency and Department of Natural Resources spearheaded a "Smart Recovery" awareness campaign. The campaign aimed at educating the public about mitigation methods and strategies as well as persuading individuals as members of their communities to make smart recovery decisions.

The campaign's intent is for mitigation to become synonymous with "smart recovery." There are two main goals of the campaign. The first is to increase the general public's awareness of natural hazard risks and related costs versus the benefits of mitigation. The second is to enhance the realization that individual and community mitigation activities can reduce the injuries, loss of life, and loss of property resulting from a disaster.

The campaign developed printed materials promoting smart recovery; aired radio, television and cable public service announcements; printed media advertisements; distributed caps, pins and stickers at public fairs and other public events; and developed a portable exhibit for use at State and local fairs, home shows and other public events.

For the State, there are several benefits of the Smart Recovery Mitigation Campaign. The public will understand what mitigation means and how they can apply it to reduce future disaster damages. At-risk individuals will take more responsibility for reducing damages by pursuing mitigation projects and purchasing appropriate insurance. The Ohio community leaders will better understand how to utilize mitigation measures to build safer communities and foster strong economic development. The at-risk communities will be better prepared to develop plans that identify mitigation opportunities and implement mitigation projects that will result in safer communities.



State-wide,
Ohio



Quick Facts

Sector:

Public

Cost:

\$250,000.00 (Estimated)

Primary Activity/Project:

Education/Outreach/Public Awareness

Primary Funding:

State sources



FEMA

Village of Fort Recovery Acquisition and Relocation

Fort Recovery, OH - The Village of Fort Recovery in west central Ohio is 20 miles southwest of the Wabash River. The Village experiences repetitive flooding from the Buck Ditch Basin, which flows through the center of the Village to reach the Wabash River. In 1996 the Village suffered from a damaging flood that prompted the implementation of an acquisition project.

The Village received funding to acquire six floodprone residential structures and physically relocate eight homes and the fire station to previously developed sites outside of the floodplain. In addition, four residences and six businesses utilized retrofitting techniques to floodproof the basements. The Village expects to have the entire project completed by the end of 1998.

The key component to the success of the Village of Fort Recovery Hazard Mitigation Project can be summed up in one word: cooperation. FEMA and Ohio Emergency Management Agency introduced a project development process to assist communities in the development of solid projects that attack the problem by considering alternative solutions that meet the required criteria. Fort Recovery involved the public during meetings, and a core group composed of citizens and local officials was formed to evaluate options and develop the acquisition project application.



**Mercer County,
Ohio**



Quick Facts

Sector:

Public

Cost:

\$871,467.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)