

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 Acquisition/Buyouts Activity/Project Types in All States and Territories relating to Flooding Hazards

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FEMA

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FEMA

Freeboard Saves Town from Additional Flood Losses

Following a devastating flood in 1993, the city of Black River Falls, located in Jackson County, Wisconsin, incorporated a concept known as “freeboard” in reconstructing their levee. Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed. Freeboard is not required by NFIP standards, but communities are encouraged to adopt at least a 1-foot freeboard to account for the 1-foot rise built into the concept of designating a floodway and the encroachment requirements where floodways have not been designated. Freeboard results in significantly lower flood insurance rates due to lower flood risk.

With a flood stage of 47 feet, the levee definitely passed the test in September 2010 when water from the Black River rose 20 feet in a 16-hour period, cresting at 61.4 feet (0.2 feet higher than its historical crest of 61.2 feet on June 20, 1993). Referred to as the “Father’s Day Flood” by residents in Black River Falls, the Great Midwest Flood of 1993 wreaked havoc, caused widespread damage, and was the most costly and devastating flood to ravage the United States in modern history. Levees were breached; farmland, town, and transportation routes were destroyed; thousands of people were forced to abandon their homes; and 47 people died as a direct result of the flood. In Black River Falls, more than 80 homes located in an area referred to as “The Grove” were affected when an earthen levee was breached. Valued between \$80,000 and \$90,000, the homes sustained an average of \$30,000 each in damages.

Partly funded by the Federal Emergency Management Agency (FEMA) and the Economic Development Administration (EDA, a U.S. Department of Commerce agency that provides grants to economically distressed communities), the city took on a mitigation project to rebuild the levee, which had originally been constructed in the 1930s, adding a 3-foot freeboard.

At a cost of approximately \$5,000,000, improvements on the 3,565-linear foot levee began in January 1994 and were completed in January 1997. Black River Falls received funds totaling \$2,014,000 from FEMA to execute a buyout project and to reconstruct the levee along the residential district. EDA provided nearly \$3,000,000 to reconstruct the portion of the levee along the commercial district.

On September 23, 2010, the city ordered the evacuation of the area of the Grove that is south of Fillmore Street up to 3rd Street. Fearing a repeat of the 1993 flood event, residents in “The Grove” were ordered to evacuate as rising water challenged the levee’s fortitude. Black River received nearly 7 inches of rain over a 2-day period. Residents returned to their homes the next day to find them unscathed because the levee held.



Jackson County, Wisconsin



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$5,000,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Other FEMA funds/ US Department of Homeland Security**



FEMA

Best Practice: Life Outside the Floodplain for Thousands of Flood Survivors

During the first week of June 2008, heavy rains flooded major rivers and tributaries, forcing the Winnebago River and creeks (Willow, Chelsea, Ideal, Mason, and Calmus) to fill area homes in Mason City, Iowa, with up to 10 feet of floodwaters. Several intervals of excessive precipitation were a major contributor to flooding as heavy rain continuously pounded most of central and eastern Iowa between May and early June 2008, causing rivers and creeks to dramatically extend beyond their bounds.

According to National Oceanic and Atmospheric Administration, statewide flood damage in Iowa communities in 2008 was estimated to be \$10 billion, with January through June the wettest period on record in the state. August through December was the second wettest period of record the following year.

After the 2008 floods, the governor made housing the priority in the state's flood recovery efforts, but ran into a problem when it was determined not all the properties that were damaged from the catastrophic flood event would be eligible for acquisition through the state's Hazard Mitigation Grant Program (HMGP).

To find a solution, the Iowa Department of Economic Development (IDED) partnered with the Iowa Homeland Security and Emergency Management Division (IHSEMD) and developed a property acquisition program funded by the U.S. Department of Housing and Urban Development (HUD) through a Community Development Block Grant (CDBG).

This partnership formulated a team effort to address the housing needs and developed a strategy to move people out of the flood hazard areas and reduce or eliminate the long-term impact that the state's flood disasters have on families, communities and the economy. The team effort resulted in the largest federally-funded buyout project in the state's history. The CDBG funds were used to acquire properties in special flood hazard areas that would not qualify for the HMGP, according to John Wageman, Hazard Mitigation Officer for IHSEMD.

To qualify for buyout approval through HMGP, all projects reviewed must be consistent with state and local hazard mitigation plans and strategies: solve a problem, provide a beneficial impact, cost less than potential future damages, present environmentally sound results, and comply with state and federal laws, rules, and administrative requirements.

Of the 173 properties FEMA reviewed for acquisitions in Mason City, 104 were approved at a purchase cost of \$10 million. HMGP is a cost-share program with FEMA paying 75 percent and state and local governments responsible for the remaining 25 percent.

Of the statewide property acquisitions through FEMA and CDBG funds, to date, nearly 2,500 property owners volunteered to join the buyout program in more than 35 communities and an estimated \$300 million has been allocated for the acquisitions.

FEMA approved \$79.6 million toward the purchase of 973 properties. The Iowa Department of Economic Development obligated up to \$230 million to purchase nearly 1,500 properties. Local and state government along with supplemental funds of an estimated \$20 million from CDBG will pay the balance, which is a 25 percent match requirement of HMGP.



Cerro Gordo County, Iowa



Quick Facts

- Year: **2008**
- Sector: **Public**
- Cost: **\$18,500,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

"Flood Amnesia" Cured by Public Education

Ottawa, Illinois, is located in a beautiful valley at the confluence of the Fox and Illinois Rivers. But it is this location that has caused the City to suffer significant damage from floods.

Ottawa has had significant flooding in an area of the town known as "The Flats," where floodwaters have reached 8 to 10 feet on a fairly regular basis due to flood events in 1974, 1982, 1983, 1996, 1997, 2007, 2008 (a record flood), and 2009. However, almost no damage was recorded after the flood of March 2009 due to mitigation and flood control efforts taken by the City.

The National Flood Insurance Program (NFIP) encourages communities to participate in the Community Rating System (CRS), which was initiated by the Federal Emergency Management Agency (FEMA) to reward communities that are doing more to prevent or reduce flood losses than the minimum requirements of the NFIP. By participating in the program, communities are better equipped to handle flood events because certification requires them to establish flood control measures that ultimately protect people and property. Not only do the risks for residents decrease by a community's participation in this program, but the costs for flood insurance can be dramatically reduced by a good rating (from 5 to 45% discounts). The rating system runs from Class 1 to Class 10, with a Class 1 being the highest or best rating available. Ottawa joined as a Class 5 community in October 2010. By achieving this rating, the City helped secure discounts of 25% on flood insurance policies for its residents.

To receive a CRS rating, credit is given for a variety of community flood protection activities. The activities are divided into four categories: Public Information; Mapping and Regulations; Flood Damage Reduction; and Flood Preparedness.

Some of the City's public information activities included holding outreach meetings in conjunction with FEMA public meetings; forming a Flood Commission composed of staff and residents that held sessions with experts on many topics dealing with flood control and the impacts of flooding; and developing a website with flood information.

Mapping and regulatory activities included zoning, stormwater management, and floodplain development with higher standards than those in other communities to ensure that new development meets and exceeds flood standards for protection.

Ottawa's flood damage reduction activities included acquiring and relocating flood-prone buildings out of the floodplain. From 1998 to 2010, the City acquired approximately 60 Repetitive Loss Properties (RLPs) in "The Flats" area. FEMA's Hazard Mitigation Grant Program (HMGP) funds were used to purchase them. The City is working to purchase eight more of the properties and, if successful, only three RLPs will remain in the entire City.

Flood preparedness received much attention from the City. Early warning systems are in place and utilize the City of Ottawa's Emergency Notification System (CENS).



La Salle County, Illinois



Quick Facts

Year:

1996

Sector:

Public/Private Partnership

Cost:

\$1,448,465.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Community Rating System (CRS)



FEMA

Buyout Resolves Flood Hazards for Many Homeowners

For generations, families living alongside the Little Sioux River in Cherokee, Iowa have known that heavy rainfall would cause the river to swell its bounds and force some measure of floodwaters into their homes. The landscape in the area changed forever as a result of the Midwest Floods of 1993 that engulfed the area with record floodwaters. With a mission to enhance the safety of citizens and reduce the impact of future property damage, local, state and federal officials embarked on one of the largest property buyout and relocation programs in the state of Iowa.

As heavy rainfall pushed the Little Sioux River over its banks, homes in a nearby low-lying area were flooded with up to 6 feet of water, more than many could recall from earlier storms. Funding became available as a result of a presidential disaster declaration to help remove people and their homes from the repetitive flood hazard area. Buyouts, sometimes called “acquisitions,” are voluntary. Homeowners agree to participate in the program and are paid pre-flood market value for their properties.

The city of Cherokee's total acquisition cost was about \$7.2 million. The Federal Emergency Management Agency (FEMA), through their Hazard Mitigation Grant Program (HMGP), funded 75 percent of the project. The remaining 25 percent of the project cost was shared between the city of Cherokee and the state of Iowa. The Iowa Homeland Security and Emergency Management Division administered the funds.

“We are happy about the home we moved into. City officials treated us fantastic. We received a fair price for our home that would have been considerably less if we tried to sell the flood-prone home on our own. It could not have worked out any better,” said buyout participant James D. Agnitsch, the Street Department Superintendent for the city of Cherokee. “We are now high and dry.”

The city of Cherokee’s acquisition program in the low-lying Little Sioux River flood area included 187 residential properties of which 156 were purchased and demolished, and 31 homes were relocated to higher ground. The total buyout area along the floodplain spanned 67 acres.

Today, the property is the home of a community horse arena that is used on weekends during the summer and is maintained by local volunteers. The bulk of the land remains green space.

“The city purchased property on higher grounds, within the Cherokee city limits, known as Colony Addition and established it specifically to provide an improved site for 22 of the 31 relocated homes. The houses were upgraded with better basements and foundations. As a result, most homeowners remained in the city, and the flood-prone, rundown properties are gone. Colony Addition looks as if the homes have always been there,” said Debra Taylor the city clerk and treasurer.

Major flooding in late June 2010 again walloped the city. This time, about 8 inches of rain fell within a few hours. The Little Sioux River crested at 27.3 feet, more than 10 feet above the flood stage. By some accounts, flooding was worse than in 1993. But, thanks to the property buyouts, damage was much less severe along the Little Sioux River.



Cherokee County, Iowa



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$7,195,211.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Detention Ponds, Not Homes, Played Host to Recent Flood Event

Incorporated in 1955, the Village of Brown Deer has been impacted by flooding several times. The village has low-lying areas and two tributaries, Beaver Creek and South Branch Creek, which funnel down to the Milwaukee River. Heavy rainfall and subsequent flooding in July 2010 challenged the city’s mitigation project and lost.

Two significant flood events, in 1997 and 1998, heightened the need for flood-mitigation activities. Wisconsin Emergency Management (WEM) and the Federal Emergency Management Agency (FEMA) offered a solution: to use Hazard Mitigation Grant Program (HMGP) funds to execute a buyout of nine flood-prone homes. HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

At a total cost of \$1,018,830.86 (\$764,123.14 federal, \$127,353.86 each state and local), nine repetitive loss properties were acquired. Following removal of the homes, a stormwater detention basin was created with funding from the Metropolitan Sewerage District (MMSD).

Three other detention basins were also constructed with funding from MMSD. A 2.5-acre detention pond was built adjacent to the public library. The pond is capable of holding approximately 5.5 million gallons of water during a rainstorm. After a rain event, water captured in the basin goes back to South Branch Creek. Another 5-acre basin was constructed to hold approximately 4 million gallons of water. A third basin was built upstream and is capable of holding 6.2 million gallons of stormwater.

The village also executed two additional initiatives to assist residents in the battle to manage stormwater. The “Early Out Project” involved reducing the volume of stormwater runoff flowing to one of the village’s neighborhoods by rerouting water flow. “Operation Flood Fix” (was funded through a Community Development Block Grant and involved low- and moderate-income households having flood-proofing improvements made to their homes, such as installation of back-flow prevention valves in basement floor drains and glass-block basement windows.

In July 2010, powerful thunderstorms caused massive flooding in Milwaukee County with some areas receiving up to 7.5 inches of rain. Portions of the Interstate flooded and a massive sink hole opened up at an intersection north of downtown Milwaukee and swallowed an SUV and a stop light. There were reports of people stranded, basements becoming ponds, and homes suffering extensive damage in portions of the county. The Village of Brown Deer had up to 5 inches of rain; however, there were no reports of major destruction from the flood event.



Milwaukee County,
Wisconsin



Quick Facts

- Year: **1998**
- Sector: **Public**
- Cost: **\$1,018,830.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Flood Survivor Decides Buyout Program Best Choice

Squaw Creek and Skunk River surround the city of Ames, Iowa. When major storms bring heavy rains to the area, both waterways flood the city's low-lying communities, including the South Riverside neighborhood.

The Great Midwestern Floods of 1993 drenched several states when four major storms caused the Mississippi River, the Des Moines River, and nearly every tributary in the area to swell and flood. Iowa was declared a federal disaster area; flood damage occurred in all of its 99 counties.

On July 9, 1993, James L. Graham recalls the sound of trucks and noisy commotion outside his South Riverside home, located with downtown Ames on one side, Iowa State University on the other, and Squaw Creek abutting his backyard. Workers were unloading and positioning sand bags. Graham could see how heavy rains had already forced Squaw Creek to escape its banks. And the water was moving quickly towards his house.

After seeing his neighbors rescued from the floodwaters and homes washed off slab foundations, Graham was grateful that his house, located on the higher side of the bank, remained. Sandbagging and two sump pumps helped to lessen the water intake. Two feet of water invaded his home. Had it not been for help from his neighbors, it could have been much worse. Even so, the Grahams lost furniture and appliances and their property sustained extensive damage.

A federal home buyout program offered hope. The Federal Emergency Management Agency's (FEMA's) acquisition (buyout) program, which is voluntary, offers homeowners pre-flood, fair market value of their properties to relocate outside the flood-prone area. Existing structures are cleared from the floodplain and the properties are returned to their natural state. Deed restrictions limit the property's use so that loss from flooding – if any at all – is minimal.

"At first I didn't want to sell, I really liked the area. When I was given a second chance to participate in the program, I began to think that this is going to happen again; we would worry about the house whenever it rained. We decided to go for it. "I never want to go through a flood again," added Graham.

With combined funds from FEMA through the Hazard Mitigation Grant Program (HMGP), CDBG, the State of Iowa, and local resources, \$2 million was awarded to the city for the buyout and demolition of 28 homes in the flood-prone area. Iowa Homeland Security and Emergency Management Division administered the funds.

Since then, the homes have been demolished and property is now an extension of the adjacent Stuart Smith Park. There are trails for biking, jogging, and walking. The buyouts pay off by eliminating future threats from disaster, as well as recovery costs. Storms, tornadoes, and 3 nights of downpours and extensive flooding resulted in four federal disaster declarations in Iowa in 2010.

"In some areas, the 2010 storms pushed floodwaters higher than 1993. Some of the houses and businesses that were not damaged then were flooded this time," said Vanessa Baker Latimer, the housing coordinator with the city of Ames Department of Planning and Housing. "We are in the process of assessing area damages and seeking available funding resources for additional buyouts."



Story County, Iowa



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$2,000,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Flood Buyout Eases Homeowners' Worries

Charlene Ostreko has seen floodwaters pour into her home more than once in the 35 years she and her husband have lived there. Flooding has occurred after major storm events have forced the nearby Four Mile Creek over its banks. The Ostrekos would always clean up, repair damages, and resume their lives.

“Our 14 by 24-foot home, located just five miles from downtown Des Moines had a park-like setting with nearly two acres; the house was surrounded by woods, filled with wildlife and animals. A huge oak tree stood in the front yard as well as an assortment of plants and flowers. My husband and I planned on living there for many years to come, along with our three cats and two dogs. We even invested \$20,000 in renovations. Prior to 2008, major storms would cause the Des Moines River and its tributaries to swell, forcing the creek to pour several feet of floodwater into our basement. The bedroom, the furnace, and water heater were located in the basement and had to be replaced several times,” added Ostreko.

By early June 2008, after nearly 2 weeks of rain that produced a statewide average of 9.03 inches, the Des Moines River had stretched Four Mile Creek more than 6 feet above flood stage.

“Our house flooded three times in 2008. The water rushed into the house really fast during the storm. By the time I got home, the basement was flooded with over five feet of water. This time the water was much higher, we lost everything down there,” stated Ostreko.

The event resulted in a Presidential Disaster Declaration. The Federal Emergency Management Agency (FEMA) awarded the City of Des Moines mitigation funds to help protect its citizens and lessen the impact of flooding in the community. The solution at Four Mile Creek was “to offer homeowners pre-flood, fair-market value of property and clear the at-risk homes out of the low-lying area.”

Despite having incurred serious flood damages, the Ostrekos were still a little concerned about participating in the voluntary buyout program.

“With help from the City of Des Moines, the Iowa Homeland Security and Emergency Management Division, and FEMA, we bought a much nicer house on higher grounds. We now have two bedrooms and two bathrooms all located on the same floor. And there’s a huge old magnolia tree in the front yard,” said Ostreko

In all, the total flood buyout program resulting from the 2008 disaster includes 17 severely damaged properties along the Four Mile Creek area at a total acquisition cost of \$1,082,605. FEMA contributed 75 percent with \$811,954 through the Hazard Mitigation Grant Program (HGMP). The remaining funds came from the State of Iowa, the City of Des Moines, and the Community Development Block Grant Program. The Iowa Homeland Security and Emergency Management Division administered the funds.

As part of the federal buyout program, the area is deed restricted and cannot be developed with permanent structures in the future. Homes have been cleared away and an abundance of wildlife is still evident in the area. The city plans to eventually use the area for conservation purposes or to build a public park.



Polk County, Iowa



Quick Facts

- Year: **2008**
- Sector: **Public**
- Cost: **\$1,082,605.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **State sources**



FEMA

Small Village Executes Large Mitigation Project

Elm Grove is a village in Waukesha County, Wisconsin, with a total area of 3.3 square miles, all of it land, except for Underwood Creek, which runs through the center of the village and through the downtown area. The creek was a constant source of flooding until flood control projects were undertaken with grant funding and the support of a population of 6,200 people.

“Underwood Creek is a part of the Menomonee River. You wouldn’t know by driving through but we are a big, big ravine with a river running through it. So it always creates lots of different challenges,” said David De Angelis, Village Manager.

Flooding was always an issue in Elm Grove. During heavy rainfall, the downtown area would get up to 5 feet of water. There was localized flooding along the creek and in homes and talk about doing something about the floods but nothing ever materialized until after the village was hit by two back to back storms in 1997 and 1998. The 1998 flood claimed two lives and damages for were estimated at \$11 million dollars, with \$9 million in business losses.

As a small community with an annual budget of approximately \$6 million dollars, the village embarked upon extensive and expensive flood management projects.

Several mitigation projects were initiated at a cost of \$3.7 million. First, a decision was made to mitigate the village park, an 88-acre parcel located in the center of the village. One of the changes was to expand a 3-acre pond to 10 acres to accommodate overflow from Underwood Creek. Other changes involved elevating an area in the park and creating a sledding hill and soccer fields; elevating and rebuilding baseball fields and volleyball courts; reconfiguring parking areas; and creating a berm along the creek.

Another mitigation measure involved property acquisitions. The village purchased several repetitive loss properties and utilized the area to create detention basins. A heavily used roadway experienced flooding numerous times a year and was often closed for days at a time. The road was elevated. To mitigate street flooding and sewer backups, the village installed permanent bypass pumps in two targeted areas. Sections of Underwood Creek showed marked deteriorations. An embankment stabilization project was also initiated.

How could a small village accomplish such a large mitigation feat?

Various funding sources were utilized. The village was eligible for grant funding through the Federal Emergency Management Agency’s (FEMA's) Hazard Mitigation Grant Program (HMGP). The purpose of HMGP is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a disaster. FEMA provides up to 75 percent of the funding, with the remainder coming from the state or applicant or both. The village also received grants from the Milwaukee Metropolitan Sewage District (MMSD), Wisconsin Emergency Management and a Department of Natural Resources (DNR) Stewardship Grant, and DNR’s Municipal Flood Control Program. The village has also imposed a storm water utility fee on each resident and created a tax incremental district (taxes are diverted from other government entities to pay for improvements within a defined district).



Waukesha County, Wisconsin



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$1,693,071.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Community Assistance Program (CAP)**



FEMA

Acquisition Makes Way for New Community Park

Shelby Park, located by the Rio Grande River in the city of Eagle Pass, is currently used for fun activities such as soccer, football, and big 4th of July celebrations. But this hasn't always been the case; there were once homes and businesses that flooded often, endangering lives and damaging properties.

Shelby Park was named after General Joseph Orville Shelby, known as the undefeated rebel, who buried the last confederate flag in the country in the Rio Grande River at Eagle Pass in 1865. Currently, in addition to being used for outdoor activities, the Park contributes to border security as it is located next to the Eagle Pass-Piedras Negras International Bridge.

In 1998, after a major flood, the city of Eagle Pass applied for the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP) to be used for the acquisition of 14 homes and 1 business; the area was cleared and turned into Shelby Park. The total cost for the acquisition project was \$531,139 with 75 percent (\$398,355) coming from FEMA and 25 percent (\$132,784) coming from local and state funding.

In July 2010, Hurricane Alex dumped a large amount of rain in Mexico and South Texas. Water was released from dams along the border, resulting in flooding along the Rio Grande River, including the area where Shelby Park is located. The event was the most recent reminder that the Eagle Pass acquisition was a successful mitigation action. If there were homes still there, they would have flooded again more.

"That area has flooded two or three times in the past six years, as I remember," said Mariebelle Rodriguez, Eagle Pass planning associate. "Those streets were closed during the last floods, no one was allowed there."

"Residential development is not a good use for land protected by a levee," said the State Hazard Mitigation Officer Greg Pekar. "The Eagle Pass buyouts saved the affected citizens the misery of flood recovery, saved the city money in flood response costs, and saved the taxpayers money by eliminating the potential for paying flood insurance claims."



Maverick County,
Texas



Quick Facts

Year:
1997

Sector:
Public

Cost:
\$531,139.00 (Actual)

Primary Activity/Project:
Acquisition/Buyouts

Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA

Acquisition Project Beneficial as Safety Measure and Recreational Avenue

Located at the confluence of the Menomonee River and Underwood Creek, the city of Wauwatosa has had a history of flooding since it was settled in the 1850s. After being inundated by floodwaters for 2 consecutive years (1997 and 1998), the city initiated an acquisition (buyout) project that not only moved residents out of harm's way, but also expanded a widely used park.

In 1998, as a result of a flooding disaster, funding through the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP) became available to a number of counties in the State of Wisconsin. Wisconsin Emergency Management (WEM) approached the city to see if they would be interested in a mitigation project. The city of Wauwatosa applied for \$1,897,085 in HMGP funds to acquire and demolish 23 properties along State Street. FEMA provided \$1,626,073 in federal funds with the WEM and the city each providing \$271,012. The total project cost was \$2,168,097. The project was initiated in July 1998 and completed in July 2001.

The purpose of HMGP is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a disaster. FEMA provides up to 75 percent of the funding, with the remainder coming from the state or applicant or both. The state administers the program and selects the projects with approval by FEMA. Applicants, which must have FEMA-approved hazard mitigation plans, may be states, local governments, Indian tribes, or certain nonprofits. Funds can be used for long-term mitigation measures, including protection of public or private property.

Mitigation measures did not come to a halt with the acquisition funded by FEMA. The Milwaukee Metropolitan Sewage District (MMSD) acquired an additional 65 properties along State Street and created a berm around the park. Pervious driveways and walkways were also added.

Commonly referred to as the Hart Park Project, mitigation measures in Hart Park resulted in the park more than doubling in size from its original 33 acres. With the removal of the structures, residents now enjoy the newly created performance stage, picnic shelters, baseball field, skateboard park, and rain garden.

Heavy rainfall in July 2010 brought floodwaters once more to the same area along State Street in the city of Wauwatosa. Hart Park, designed to hold a 100-year flood event at bay, had no problem with the reported 2 feet of floodwaters.

Under the Stafford Act, any land purchased with HMGP funds must be restricted to open space, recreational, and wetlands management uses in perpetuity. Most often, a local government takes responsibility but, even if a state or federal agency takes ownership of the land, the deed restrictions still apply. Property acquisition is one of many forms of hazard mitigation, but it is the most permanent form. It removes people from harm's way forever.



Milwaukee County,
Wisconsin



Quick Facts

Year:
1997

Sector:
Public

Cost:
\$2,168,097.00 (Actual)

Primary Activity/Project:
Acquisition/Buyouts

Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA

The City of Rio Bravo Focuses on Mitigation

When Hurricane Alex made landfall on the northeast Mexican Coast in the summer of 2010, causing extensive flooding along the Rio Grande River in Texas, mitigation actions previously taken by the city of Rio Bravo certainly paid off.

Rio Bravo is a border town separated from Mexico by the Rio Grande River. The city started as a colonia, where construction was unregulated, and later, was incorporated into Webb County. Its history brings with it many challenges. In 1998, several homes that were located along the river were severely flooded. The city applied for the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP) for the acquisition of those homes. A total of 17 homes were purchased. The cost for the project was \$365,603 with 25 percent being the local share and 75 percent covered by FEMA's grant.

"If there were still homes there (during hurricane Alex), they would be gone," said Andres Butler, Webb County emergency management coordinator. "The water was so high."

FEMA's HMGP is a state administered grant available to local eligible communities to implement long-term mitigation measures following a major disaster declaration.

"The state is very much in favor of buyouts," said Marsha Rutherford, mitigation specialist from the Texas Division of Emergency Management. "It provides a permanent solution to the problem."

Since the cleared land must remain open space in perpetuity, the area was turned into soccer and baseball fields.

"The flood took them (the fields) away but they are probably coming back," said City Secretary Omega Delgado. "We don't have a lot of stores and things to do for fun here."

A raw water intake structure that provides water to the cities of Rio Bravo and El Cenizo is located next to the cleared land by the Rio Grande River. "It is very important that it doesn't go out," said Butler. He added that around 13,000 people depend on it. In order to comply with floodplain regulations and to continue in good standing with the National Flood Insurance Program, the county elevated the structure in 2006. The cost was covered by a grant from the Texas Water Development Board (TWDB), according to Butler. The elevation proved itself invaluable during Hurricane Alex by keeping the raw water intake equipment above the floodwaters and avoiding interruption of the water supply to the people of Rio Bravo and El Cenizo.

Rio Bravo's Mayor, Nora Rivera, said they are looking into other mitigation projects to protect their citizens. One of the projects is the installation of an alarm to warn residents of weather emergencies; another is applying for a second HMGP grant for the acquisition of homes that were flooded in the latest floods of July 2010.

Prince Aryee, FEMA Hazard Mitigation Planner, encouraged the mayor to add projects such as home elevation, acquisitions, and retrofitting the city hall structure to their mitigation plan. "If you have projects in the mitigation plan, it makes the review process for funding easier and faster," said Aryee. "The state of Texas awards points for projects listed in the local mitigation plan and can increase your chance of getting the projects selected."



Webb County, Texas



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$365,603.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



Flood Control Mitigation Saves Employment

Without funding from the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP), a city in southeast Tennessee might not have broken a cycle of flooding that threatened to drive away its top employer. In early 2003, 2 days of torrential rains inundated downtown Cleveland, causing the owners of the Whirlpool plant to consider closing.

Greg Thomas, Community Development Director and Floodplain Administrator, said, "After the 2003 event, we had the proof of what stormwater could do to this old, compact area." To help reduce losses to an area after a major disaster has been declared, FEMA provides HMGP grants to local and state governments to complete long-term mitigation projects. After comprehensive flood studies were conducted, the city of Cleveland applied for HMGP funding through the Tennessee Emergency Management Agency. The funds allowed properties in the most hazardous areas to be purchased in order to construct three dry detention ponds. The ponds, drainage areas designed for flood control, temporarily hold stormwater runoff that gets trapped in areas prone to flash flooding.

The catastrophic flooding in 2003 caused an estimated \$500,000 in damage to the Whirlpool plant. Two previous floods, in April 1964 and March 1973, had also caused thousands of dollars of damage to the plant. The owners were tired of repairing or replacing resources and stopping production. One critical area that was constantly at high risk of flooding was the raw steel room, which houses thousands of pallets of steel used in production. The steel, once wet, cannot be used and must be replaced.

Options to reduce the impact of flash flooding, such as moving the location of the steel room and production stations within the facility, would be much more costly. The entire plant would have to be redesigned in order to follow production flow and relocate the steel supply room. The flood control project was the most cost-effective plan.

Although Cleveland is home to several manufacturing companies, closure of its largest employer, Whirlpool, would be devastating to the local economy. Built more than 100 years ago, the plant has been home to various major household appliance manufacturers, including Magic Chef Inc. The area once housed many businesses and residents, but Whirlpool remains intact, solely producing cooking appliances.

In 2008, the mitigation project enabled the company to bring 500 additional jobs to Cleveland, while greatly reducing the city's repetitive loss. "Whirlpool made the decision to close a nearby plant in Mississippi and move that operation to Cleveland," said Whirlpool Safety, Health and Security Manager Tim Edwards.

Residents and business operators in the area agree that the detention ponds were a great investment for the community. The detention ponds have helped save more than 1,500 jobs, allowing Whirlpool to continue calling Cleveland home.

Currently, Whirlpool officials are planning to build a new facility that will add 130 positions to the city's workforce.

"It was good for the industry, the community, and the citizens that live around the community," Spence said. "It was a win-win for all!"



Bradley County, Tennessee



Quick Facts

- Year: **2003**
- Sector: **Public**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Mitigation Measures Turn the Table on Two Centuries of Flooding

Lawrenceburg, Tennessee, a city with approximately 11,000 residents, has had its share of flood damage to homes, roads, and public buildings. After seven presidentially declared disasters, an annual average of 60 inches of rainfall, and millions of dollars in flood damages, the city officials decided enough is enough, and took action to control the flooding.

Funded by FEMA's Hazard Mitigation Assistance (HMA) grant programs, the flood control project includes two retention ponds and one detention basin, all connected by several flood channels that are designed to hold 100 million gallons of stormwater. With the use of FEMA's HMA grant program, known as Flood Mitigation Assistance (FMA), city officials were able to obtain an extensive flood study of the area and receive help with planning the project. FMA funds mitigation projects for properties and structures insured under the FEMA-administered National Flood Insurance Program.

Phase I of the project consisted of more than 80 acquisitions of homes and businesses and development of two small retention ponds on the north side of downtown. The city used Housing and Urban Development (HUD) - Disaster Recovery Initiative (DRI) grants to purchase the properties. HUD's DRI grants are appropriated by Congress to address unmet disaster recovery needs.

"Clearing the creek was the main objective," said Lawrence County Emergency Manager Joe Baxter. "We had to move the people and businesses to let the creek have its path."

When the flood of 2003 struck the city, the two partially completed retention ponds proved to be highly effective. Together, the ponds were able to capture 7 million gallons of water that would have otherwise caused major flood damage to residences and businesses.

Once the water receded and cleaning was done, the city began Phase II of the plan. The city used funding from FEMA's HMA grant program, Hazard Mitigation Grant Program (HMGP), to assist in development of a 7-acre detention basin about 3 blocks south of Phase I. HMGP offers states up to 75 percent of the cost of mitigation projects following a disaster.

Currently under construction, Phase III is a series of underground channels placed throughout the town to control the flow of drainage to and from the ponds and basin. This major mitigation project has provided flood protection for 100 homes, businesses and churches for the past 7 years.

In May 2010, much of central Tennessee experienced one of the worst floods in its history. Flood waters pummeled Lawrenceburg, filling the ponds, basin, and flood channels beyond capacity, but the downtown area escaped with only minor damages. Flooding only destroyed county roads and bridges during this event. As the final phase of the mitigation project nears completion, Baxter is pleased with the results.

"We have not had any major damages to homes and businesses since construction began in 2003," he said. "The project is a major help to the entire community." The mitigation project opens the land, allowing for better drainage of the area. Creating parks is not only smart land use planning for acquisition projects, but also beautifies the area by adding places the community can enjoy.



Lawrence County, Tennessee



Quick Facts

Year:

2002

Sector:

Public/Private Partnership

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Wimpole Drive – Moving From Waterway to Greenway with HMGP

Wimpole Drive, a street that stretches along Mill Creek in southeast Nashville, Tennessee, is tailor-made for the property acquisition option of the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP). Because Wimpole Drive experiences repetitive flooding, residents are in harm's way and financial costs are significant.

As early as 2000, concerned residents along Wimpole Drive began contacting city officials at Metro Water Services about the flooding. Metro contacted FEMA through the Tennessee Emergency Management Agency (TEMA) to develop a voluntary buyout plan to purchase properties in the flood-prone areas, but it would be 3 years before the program would be implemented.

In May 1979, a thunderstorm ravaged the area with torrential downpours, causing Mill Creek to rise to 23 feet, or 9 feet above flood stage. Homeowner Vera Williams recalled that most of the homes along Wimpole Drive, including hers, suffered water damage. "The experience was very hard, very hurtful and very stressful," she said.

Only 4 months later, the area flooded again when Hurricane Frederic, a Category 4 storm, dumped more than 6 1/2 inches of rain on Nashville and caused another round of major water damage. Although the property buyout program was not yet in place, Williams had already turned to FEMA for help in being better prepared for this disaster. "First we contacted our homeowners' insurance agency to file a claim," Williams said. "They told us we need to get flood insurance."

Apparently, many people are unaware that homeowners insurance does not cover flood damages. FEMA administers the National Flood Insurance Program, which works with private insurers to offer flood coverage to property owners and renters in participating communities.

To move residents out of the danger zone, in 2003, TEMA initially proposed buying 20 homes on Wimpole Drive using HMGP funding. Many residents, including Sharon Lord, immediately responded to the voluntary program and sold their houses.

For property owners, like Vera Williams, who were still hanging on to their houses, the worst came in early May 2010. More than 13 inches of rain fell over a 2-day period, submerging parts of Nashville in the area's worst flood in more than 70 years. Mill Creek crested at a record of more than 12 feet above flood stage, with high-water marks along Wimpole Drive at 9 feet and above. This time, Williams' house was substantially damaged. Williams has since received another letter from FEMA requesting her participation in the buyout program, and this time she's ready to sell.

Once the remaining homeowners also agree to the buyout program, the houses will be demolished and the properties turned over to the parks department, allowing the area to be made into a greenway. Stan Robinson, administrative officer of Metro Water Services, is optimistic that, in time, the community will fully participate. Getting residents out of harm's way, minimizing recovery costs and expanding public recreation are the key components of hazard mitigation.

"Hazard mitigation is not a disaster-relief program," Robinson said. "It is a program to reduce risk and improve communities."



Davidson County,
Tennessee



Quick Facts

Year: **2003**
Sector: **Public**
Cost: **Amount Not Available**
Primary Activity/Project: **Acquisition/Buyouts**
Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Landgraft Property Acquisition - Effective Mitigation Prevents Flood Damage



McDowell County,
West Virginia

McDowell County, WV - On June 20, 2010, several inches of heavy rain fell on the steep mountain slopes that surround the Elkhorn Creek Watershed, causing severe landslides and flooding in McDowell County, West Virginia. One area that didn't receive property damage, lessening the damage downstream, was Shawnee Bottom in the unincorporated town of Landgraft. Located in an area straddling Route 52 that was once a coal camp in the Pocahontas coalfield, the town has seen its share of severe flooding and has over 10 acres of land located in the floodplain.

Structural floodplain management measures, such as filling the floodplain and dredging or widening stream channels, have been attempted in hopes of lessening the effects of flooding, but have had the opposite effect. Filling in a floodplain is restrictive and sends more water downstream. Efforts to widen and dredge a stream channel can bring immediate results but, in the long term, a waterway's natural behavior is to redeposit and refill a streambed. Maintaining a dredged stream is very costly and destroys aquatic habitat. Therefore, as a result of the 2001 and 2002 floods, a focus on floodplain management rather than flood control was proposed.

The FEMA Hazard Mitigation Grant Program (HMGP) acquisition project was initiated by the State of West Virginia and FEMA.

The acquisition projects funded by the HMGP were voluntary and homeowners were under no obligation to sell their homes. McDowell County officials considered other options when looking for solutions but, after consulting with State officials, it was determined that the most effective mitigation measure in this location would be the acquisition of properties, relocation of residents, and removal of structures from the hazard area.

Property acquisitions presented owners with an opportunity to recoup part of their investment in their property that had lost some, if not most of its value due to the flood damage.

All the properties in Landgraft except one in the floodplain were acquired. The land is deed-restricted and can only be used for open space. With property acquisition by the HMGP and building demolition by the U.S. Army Corps of Engineers having taken place with little or no rebuilding as of June 2002, the floodplain area created a flood storage area large enough to be effective in reducing flood damage in downstream areas at risk.

The land located in and identified as a high-risk flood hazard area is approximately 11 acres and allows floodwaters to spread out and silt, rock, and sediment to be deposited. This project didn't eliminate damage downstream, but it reduced it in addition to preventing property damage for the residents who had lived in the Landgraft floodplain prior to floods in 2009 and 2010.

The acquisition projects in Landgraft for the floods of 2001 and 2002 were begun in 2001 and completed in 2008. A total of 15 properties were acquired and two flood events that occurred after the buyout have resulted in long-term and ongoing savings. Officials said the former residents have relocated to safer areas.



Quick Facts

Year:

2001

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Lost Valley Acquisition

Manville, Somerset, NJ - The Borough of Manville is located in Somerset County in the northern region of New Jersey. Over the years, the Lost Valley neighborhood in Manville experienced repetitive flooding, dating back to Hurricane Doria in 1971. After Doria there were three subsequent severe storms, with Hurricane Floyd in September 1999 being the worst. Hurricane Floyd brought 11 inches of rain in 18 hours and water levels in Lost Valley reached 12 to 17 feet. Homes were devastated.

The Lost Valley neighborhood is so named because it is generally disconnected from the rest of the Borough. There are only two ways to enter: a tunnel under a railroad right-of-way at Kyle Street, and a bridge over the same railroad right-of-way at Bridge Street. The ranch-style family homes in Lost Valley were developed after World War II. Manville lies between the Raritan and Millstone rivers, with the former flowing into the latter. This convergence of rivers places the neighborhood in the middle of a floodplain. Prolonged heavy rainfalls cause Millstone River to overflow, which in turn cause Manville flooding events.

A buyout was suggested because the residents of Lost Valley were tired of the cleanup and costs every two to three years from flooding. When the opportunity presented itself, 400 residents applied for a buyout, but only homes that had substantial damage and were uninhabitable qualified for the offer. Ultimately, 37 homes were approved.

The Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program provides funding to reduce losses and protect lives and property from future disaster damages. A grant, awarded in 1999 to Lost Valley, entailed buying out, demolishing, and replacing properties with a recreational park. Using the grant for a buyout eliminated significant neighborhood flood risk.

The 6.2 million dollar cost for the buyout project was funded by FEMA and the New Jersey Department of Environmental Protection Green Acres Program. As a result of this mitigation investment, an open space is available for public recreational use and 37 families now live outside this floodprone area.



Somerset County,
New Jersey



Quick Facts

- Year: **1999**
- Sector: **Public/Private Partnership**
- Cost: **\$6,000,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Flood Mitigation Assistance (FMA)**



FEMA

Buyout Saves Two Families from Another Flood

Greenbrier County, WV - Every time heavy rain fell in western Greenbrier County, West Virginia, two properties in low-lying areas along Anjean Road in Rupert and Route 60 in Charmco suffered serious flooding. The homes were always at risk. Spring rainstorms and snow melt repeatedly caused major damage to these properties. They would have been damaged again during the severe storms and flooding of March 2010 if actions were not taken.

In 2008, Al Whitaker, Director of Greenbrier County Emergency Services, decided it was time to address this problem as part of the county's overall mitigation plan. After the county determined that the two homeowners voluntarily wanted to sell their properties, the county applied to the West Virginia Division of Homeland Security and Emergency Management for acquisition funding from the Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program.

This funding becomes available as a result of a presidential disaster declaration and assists states and local jurisdictions implement long-term mitigation measures. FEMA funds up to 75 percent of an approved project; the remainder comes from state and local sources. Acquisitions, sometimes called "buyouts," are voluntary. Both homeowners agreed to participate and were paid pre-flood market value.

During a break in the rough winter of 2009, the demolition contractor removed the structures, leveled and seeded the properties. The green space is now deed-restricted, which means no structures can be built on the land in the future.

An inspection by local officials in April 2010 showed open lots with grass beginning to grow. The adjacent property owners are now paying the county token rent of \$1 to use the land for family gardens. The project cost for acquisition, demolition, and site work was \$105,000, of which FEMA funded \$78,750.

Greenbrier County officials believe it was money well spent. Whitaker said the former residents have relocated to safer areas, and he hopes they never again have to suffer the economic and emotional losses of their homes being damaged by flooding.



Greenbrier County,
West Virginia



Quick Facts

- Year: **2008**
- Sector: **Public**
- Cost: **\$105,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Moving Out of Harm's Way Proves Advantageous and Gives Rise to Widely Used Park

Poinsett County, AR – Property acquisition (buyout) is one of many forms of hazard mitigation. It is also the most permanent form. It removes people from harm's way forever. The City of Harrisburg initiated a buyout of four residential properties, which not only eliminated the cycle of repetitive flood loss and the financial burden associated with rebuilding after a flood but also gave rise to a widely used park – the L. Dana Collins Municipal Park.

In March 1997, Poinsett County was included in a federal disaster declaration resulting from severe storms and tornadoes (DR-1162) in the State of Arkansas. The county took advantage of the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) to initiate projects that would eliminate or reduce future risks. One such project was the buyout of four homes located in a floodprone area in the City of Harrisburg.

Buyouts are strictly voluntary. No homeowners are ever forced to relinquish their property. Removing floodprone structures from private ownership eliminates the threat of future damage and also eliminates health and safety risks for homeowners and public safety personnel. It also eliminates the need for emergency response services, subsidized flood insurance, and federal disaster assistance. As a mitigation measure, acquisitions provide a means of recovery that is more advantageous than repair grants or loans. It's an opportunity for homeowners to at least partially recoup a financial investment in a property that has lost value.

In an acquisition project, the community buys private property, acquires title to it, and then clears it. The property, which is now public property, must remain open space; however, it can be used to create public parks, wildlife refuges, etc. but it cannot be sold or developed. In keeping with guidelines, the City of Harrisburg created the L. Dana Collins Municipal Park, named in honor of a local, retired farmer who volunteered numerous hours in landscaping areas within the city.

How does the acquisition project work? Homeowners don't apply to FEMA for a buyout. Buyouts are not part of the disaster application process and are not part of disaster assistance. An HMGP application is prepared by local officials – with input from the community and those homeowners with destroyed or severely damaged properties. The local officials will have been notified by the state of what the state's priorities are or other special restrictions decided upon by state officials. The state receives and reviews the applications and submits those deemed appropriate to FEMA for approval. FEMA reviews the applications to ensure they follow the rules, are environmentally sound, and are a cost-effective use of funds. Once FEMA gives its approval, the state begins the acquisition process. The communities actually conduct the purchase and title transfer. Then the buildings are removed or destroyed by the community and the land is cleared.

Total cost of the buyout project was \$217,775.00, including \$163,331.00 (75 percent) in federal funding) and \$27,222.00 (12.5 percent) each in state and local funding. It provided a "win-win" situation.



Poinsett County, Arkansas



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$217,775.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Creative Financing Removes New Jersey Residents from Harm

Wayne, NJ - The Hoffman Grove neighborhood along the Pompton River began as a summer recreation area used for camping, boating, and swimming around the turn of the 20th century. Families typically traveled by train from the crowded cities to the then rural Wayne Township where Hoffman Grove is located.

A core group of vacationers formed an association, and the area slowly transformed from a campground to a few rows of summer homes. In the 1920s and 1930s, as the Township began to grow, these summer homes were converted to year-round dwellings. However, Hoffman Grove is situated along the Pompton River, about mid-point in the Passaic River basin, surrounded on three sides by the Pompton River, and separated from adjacent neighborhoods by a New Jersey Transit commuter line. It became more and more subject to flooding as the watershed was developed during the second half of the 20th century. The railroad track embankment acts as a levee and restricts the flow of flood water to the entire floodway, increasing the floodwater depth in the Grove.

Hoffman Grove is a 116-home community that has been subjected to 14 major and 13 moderate flood events in the last 40 years, resulting in loss of life and severe repetitive property loss. Whenever there is the threat of moderate to severe flood event, swift water rescue teams and other support personnel and equipment are mobilized to assist in voluntary and emergency evacuation, as needed. Wayne Township Office of Emergency Management (OEM) Director Sandy Galacio said currents can run as swiftly as eight knots, in waters that hide mailboxes, sheds, vehicles, and fences—all which pose danger to a rescue boat's propeller. In swift water, when propulsion is lost, the lives of all aboard the craft are in jeopardy.

When preliminary meetings to consider a home buyout mitigation program were held with Hoffman Grove property owners in 2005, there was skepticism.

“Owners and tenants alike seemed united in their mistrust of the government to make good on promises” said Galacio. At the meeting, a creative funding package was proposed that included the Federal Emergency Management Agency’s (FEMA’s) Hazard Mitigation Grant Program, state flood mitigation assistance, and the Department of Environmental Protection-Green Acres program.

About a third of those who attended these meetings became convinced that local, state, and FEMA officials were sincere in their concern for the welfare of the community. Property owners who were interested in participating in the volunteer buyout program began to fill out the necessary waivers, and the first round of acquisitions became a viable project -- 34 homes were purchased in 2006.

After talking with their neighbors, many of those homeowners who had been skeptical of the buyouts during round one anxiously signed up for the second acquisition. There were another 37 homes purchased in 2009 for a total of 71 homes during the first two rounds.



Passaic County,
New Jersey



Quick Facts

Year: **2007**
Sector: **Public**
Cost: **\$4,000,000.00 (Estimated)**
Primary Activity/Project: **Acquisition/Buyouts**
Primary Funding: **Hazard Mitigation Technical Assistance Program (HMTAP)**



FEMA

Flood Insurance and Mitigation save Taxpayer Dollars for Tidewater and Poquoson

Multiple Counties, Virginia - The southeastern areas of the Commonwealth of Virginia suffered extensive flooding of up to 18 inches of rain from severe storms associated with Tropical Depression Ida and a Nor'easter. The damaging effects of the storm began on November 11, 2009. The Governor requested a major presidential declaration for Public Assistance for five counties and seven cities; on December 9, the President declared a major disaster for the affected communities.

The Virginia Department of Emergency Management (VDEM) reported that "although there were significant impacts on individuals and businesses as a result of the storm, the Preliminary Damage Assessment (PDA) process determined that there was a very high level of insurance in the areas affected, which would preclude the need for an Individual Assistance declaration."

It was determined that approximately 80 percent of the damage was covered by flood insurance. This spared taxpayers the expense of additional Federal disaster assistance through FEMA's Individual Assistance program. The large number of flood insurance policies in force is very important, for according to the Virginia Department of Conservation & Recreation (DCR), Floodplain Management Division, "Damage from flooding since the 1950s indicates that Virginia experiences more than \$400 million in damages each decade."

Matthew Wall, Hazard Mitigation Program Manager for VDEM, states, "Homeowners were aware of the hazard, what it can do, and have taken the appropriate steps of acquiring and maintaining flood insurance."

In the Tidewater, Hampton Roads areas of southeastern Virginia, which were damaged by the November 2009 severe weather, there has been an average increase of approximately 45 percent in the number of flood insurance policies in force between Hurricane Isabel (2003) to Tropical Depression Ida and the Nor'easter in 2009. This increase reflects the ultimate goal of hazard mitigation: A flood occurred, private property was damaged, and taxpayer dollars were not needed to support their recovery efforts because the property was adequately insured.

Another important factor was incorporating freeboard requirements into a community's regulations. Freeboard is an additional amount of height above the Base Flood Elevation (the elevation of 100-year flood event that has a one-percent-annual-chance of occurring in any given year). It is used as a factor of safety (e.g., two feet above the base flood) in determining the level at which a structure's lowest floor must be elevated or floodproofed to be in accordance with the Commonwealth or community floodplain management regulations. Freeboard reduces flood damage and results in significantly lower flood insurance rates due to lower flood risk.

Alison Meehan, Floodplain Program Planner for the Virginia DCR, said, "The requirement by most of the affected communities to include freeboard into their floodplain ordinance as a factor of safety is responsible floodplain management and, therefore, an important ingredient in reducing the damage caused by this November flooding."



Multiple Counties, Virginia



Quick Facts

- Year: **1999**
- Sector: **Public/Private Partnership**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Business Owner**



FEMA

Cowboy City Corrals Stormwater

Laramie County, WY - Cheyenne, Wyoming, a city that counts authentic cowboys among its 55,000 residents, appears to be an unlikely place for flooding. Summers in the former frontier town tend to be hot, dry and windy, while the winters are cold, dry, and windy. Waterways are narrow and some convey only a trickle.

But the southeastern corner of Wyoming, where Cheyenne is located, has a history not only of gun-slingers but also of disastrous torrents. While significant floods occurred in 1883, 1896, 1904, and 1929, arguably the worst was the tragic flash flood of August 1985. A thunderstorm developed over the city August 1, dumping more than six inches of rain in three hours. By August 2, the severe flooding, accompanied by at least one tornado and several feet of hail, resulted in 12 deaths and injuries to 70 people. Total damages exceeded \$60 million.

To reduce the flood risk, the city, along with Laramie County, implemented a series of flood control projects. Four of these used resources from three different mitigation grant programs of the Federal Emergency Management Agency (FEMA), as well as other sources. Chief among them was the Dry Creek Flood Control Project, which diverts water in the segment of Dry Creek known as the Sheridan reach, where 11 of the 12 deaths occurred in 1985. It is the largest flood control project in the state's largest city.

Governor Dave Freudenthal recalled the 1985 flood when he spoke at a ceremony marking the completion of the Dry Creek project. "I think I'm like most people in Cheyenne. You can remember where you were when the flood came," he said.

"As you look at the size of these detention ponds, it gives you some recollection of the scale and amount of water that actually came through Cheyenne at that point in time," he added. "These ponds are simply part of an effort to make sure that Cheyenne never endures that tragedy again."

Completed in 2009, the Dry Creek diversion included excavation and construction of two detention basins and installation of about 1,950 linear feet of reinforced concrete drainage pipe measuring up to 10 feet in diameter. The drainage pipe combines with about 1,500 feet of open channel to form three links: from an existing reservoir, named Carey Reservoir, to one of the basins; from that basin to the second one; and from the second basin to Dry Creek just downstream of the Sheridan reach.

In addition, the U.S. Environmental Protection Agency (EPA) used funds authorized under Section 319 of the Clean Water Act for a wetland, which is downstream from the second basin. Designed to improve water quality, the small marsh also provides additional storage capacity.

In all, the diversion provides 368 acre feet of storage capacity. It measures 7,271 feet in length and bypasses the 4,685-foot-long Sheridan reach. It diverts water in excess of a five-year flood event – a flood that has a 20-percent-annual-chance of occurring in any year – away from the Sheridan reach and it is capable of providing storage during major storm events. It was designed to convey the bulk of the flow in a 100-year flood event, which has a 1-percent-annual-chance of occurring in any year.



Laramie County, Wyoming



Quick Facts

Sector:

Public

Cost:

\$8,963,961.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Buyout Brings Peace of Mind

Douglasville, GA – Robin Wagner remembers waking in the middle of the night more than once to the sounds of pounding rain and crashing thunder. Each time meant she had to grab her flashlight and rush outside to check the height of the creek that ran behind her house.

Wagner, a single mother, and her daughter, moved into their comfortable two-story home in 1997. For the first six years, all was peaceful. But in 2003, as the surrounding area experienced an increase in development, Wagner’s house began to flood with disturbing regularity. On numerous occasions, floodwaters would inundate her house and reach as high as four feet inside as the nearby creek overflowed.

“Twice the fire department had to rescue us in boats,” said Wagner. “One time we escaped with only the clothes on our backs. After that, my daughter always packed her suitcase so that if we had to get out fast she would have clothes. She packed every time it rained.”

The Wagners needed a permanent way out.

The Douglasville – Douglas County Water and Sewer Authority (WSA) is a publicly owned utility company that provides services to 40,000 customers in Douglas County. As a participating member of the Metropolitan North Georgia Water Planning District, the Douglasville – Douglas County WSA is required to generate future condition flood studies and update its floodplain maps to reflect future flood hazards within its jurisdiction.

By 2006, following the most recent updates of its floodplain information, the Douglasville – Douglas County WSA had identified a large number of houses throughout the county that were in a Special Flood Hazard Area and at high risk of flooding. To mitigate the risk, the WSA began by looking at six of the homes most prone to flooding, one of which was Wagner’s. Because the houses were scattered throughout the county, Douglasville – Douglas County WSA officials visited all six homeowners individually to share the county’s updated floodplain information and discuss the homeowners’ participation in a voluntary property acquisition project.

The Federal Emergency Management Agency (FEMA) funded property acquisitions and demolitions involved a community offering owners of floodprone structures market value for their property to give them the ability to relocate out of harm’s way. Once the properties are purchased and the structures are removed, the land is converted to permanent open space and maintained in perpetuity for uses compatible with open space, recreational, or wetlands management practices.

To begin the process, the Douglasville – Douglas County WSA applied to the Georgia Emergency Management Agency for a Pre-Disaster Mitigation (PDM) grant. PDM grants, which are funded by FEMA, make money available to state and local governments to implement cost-effective mitigation measures to reduce risk to life and property prior to disaster events. Grants are awarded on a competitive basis and require a cost-share. FEMA funds 75 percent; the remaining 25 percent must come from non-federal sources, such as local or state governments.

A PDM grant of \$866,000 provided the funding necessary for the Douglasville – Douglas County WSA to acquire and demolish the six endangered houses.



Douglas County, Georgia



Quick Facts

Sector:

Private

Cost:

\$170,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buyout in Bulk: The Jackson Square Condominium Acquisition

DeKalb County, GA – Jackson Square condominium complex sits on the banks of the North Fork Peachtree Creek in DeKalb County, Georgia. Constructed in the 1960s, each of the original 11 buildings contains eight, two-story townhouse-style rental apartments. In the early 2000s, the complex was sold, and the apartments were converted into individually owned condominiums.

Built prior to the creation and use of federal flood maps, at least four of the apartment buildings sit below a Base Flood Elevation (BFE) that was established in the 1970s for the area. Though the frequency of events is uncertain, local reports indicate that through the years since Jackson Square’s construction, parts of the area have flooded a number of times.

“Because the branch of Peachtree Creek runs through that area, every time we had a significant rain event, water intruded into the Jackson Square complex,” said Willie Greene, assistant director for the DeKalb County Public Works Department’s Roads and Drainage Division. “Every time we would get a flood situation, the fire department would have to go out with boats and rescue vehicles.”

In June 2003, following the condo conversion, and after most of the units had been occupied, North Fork Peachtree Creek overflowed and flooded sections of Jackson Square again. Four of the buildings that sat below the BFE – 32 homes in all – had more than 1½ feet of water in the first-floor living space.

The Jackson Square homeowners’ association began inquiring into possible solutions to the problem of repeated flooding. DeKalb County hired a local engineering firm to assess the creek, bridges, and other structures in the waterway, as well as the surrounding terrain, to look for causes for the flooding as well as ways to decrease flood levels. Upon completion of the study, the firm’s final recommendation was to purchase and remove the four most threatened structures in the complex.

Before work on the acquisition project could even begin, Hurricane Ivan impacted Georgia in September 2004. Once again, Peachtree Creek’s North Fork overflowed, and the 32 homes were inundated with water, this time reaching higher than two feet on the first floor. The homeowners in those buildings decided they’d had enough.

“We started with a series of neighborhood meetings,” said Greene. “We went in to let them know that acquisitions were a possibility and to determine what their reaction would be, and they really jumped on the option of buyouts.”

The Jackson Square acquisition was notable in that it was one of the first condominium buyouts to be performed in the State of Georgia. One of the aspects that made the condo acquisitions more challenging was the level of coordination that was necessary among all the involved parties.



DeKalb County, Georgia



Quick Facts

Sector:

Private

Cost:

\$4,500,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buyouts in Mott, ND, Reduce Risks, Return Revenue

Mott, ND - Surrounded by farmland on the prairie of southwest North Dakota, Mott, with a population of about 800, offers a Norman Rockwell, small-town lifestyle –one that is idyllic and a little old-fashioned. But like much of the state, Mott, which is built on the banks of the Cannonball River, has had a long history and high risk of flooding.

Since 1943, rapid snowmelt, heavy rains, and intense thunderstorms led to flooding along the river. In addition, the formation of ice jams, mainly at bridges, has sometimes weakened the bridges and caused water backup into the city.

After flooding in 1997, the city utilized funds from the Federal Emergency Management Agency (FEMA) to reduce the flood risk on the floodprone west side of the Cannonball River. Homes and lots were purchased and replaced with open space that is used for a park and campground. As a result, during the widespread flooding of 2009, much of the area was again inundated, but damage was minimal.

“The water displacement wasn’t as bad because the houses weren’t there,” said Mayor Troy Mosbrucker. “There wasn’t as much damage because the water wasn’t as high.” His observations were consistent with computer modeling that has shown that, even for smaller flood events, acquiring the homes and land took people and structures out of harm’s way and provided financial benefits to the community.

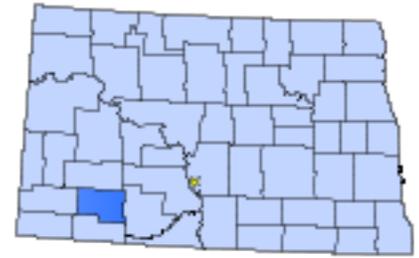
Mosbrucker, a Mott native who became mayor in 2003, recalled the area before the buyouts. Single-family homes, built mainly in the mid-1900s, stood among tall cottonwood and elm trees. Three grain elevators were nearby, along with a train depot that was later converted to a day center for seniors. Mosbrucker also recalled the 1997 flood. A volunteer firefighter at the time, he helped with the mandatory evacuations of 50 families. He remembers the water was rising as people were leaving their homes.

Similarly, long-time resident Vic Messmer has vivid memories of his losses due to the 1997 flood.

“We had tremendous damage,” he said, adding he was flooded out three different times over the years. After 1997, he and his wife, Clara, had “no other option” than to take the buyout. They now live in a home on higher ground on the other side of the river.

In all, the buyouts included 25 homes and 19 adjacent lots. FEMA contributed \$97,123 through Flood Mitigation Assistance and \$319,755 through the Hazard Mitigation Grant Program. The combined amounts represented 75 percent of the total cost of \$555,837 with the balance coming from the state. The North Dakota Department of Emergency Services, working closely with FEMA, administered the grants.

After the city purchased the homes, a public auction was held to sell them, defraying project costs. Two homes were moved to higher ground, including one owned by the mayor’s brother. After cabinets, fixtures, and materials were auctioned, the remaining structures were burned to provide training for the fire department volunteers.



Hettinger County, North Dakota



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$555,837.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Flood Mitigation Assistance (FMA)**



FEMA

FEMA Projects Lower Flood Risks in Cogswell, North Dakota

Cogswell, ND - Like many North Dakota communities, Cogswell, founded by pioneers in 1885 and located on the prairie near the southeastern corner of the state, has been plagued repeatedly by overland flooding and lack of drainage. But in the spring of 2009, while vast areas of the state remained inundated for weeks by floodwaters, the abundance caused only minor concerns in Cogswell. Dennis Dockter, a member of the city council and former mayor, said the Sargent County city stayed dry because of steps that had been taken in previous years.

Dockter explained that water drains toward Cogswell from a ridge one mile to the west and flows from the high points to the low points in city. "Cogswell shouldn't have been built where it is. It's in a bowl. Water drains into it," he said. But, he added, Cogswell is the only home many people have known. "It's been home to so many people for ages. Families are here and their roots are here."

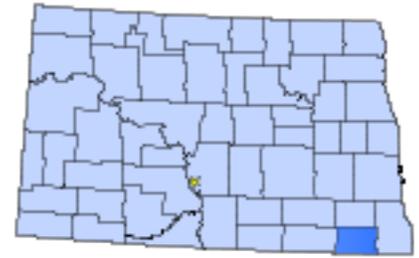
As happens in communities throughout North Dakota, many homes flooded in Cogswell during high-water events, with some receiving damages that equaled or exceeded 50 percent of their pre-flood market value. Through FEMA's Hazard Mitigation Grant Program, the city purchased four such homes.

With funding from the Federal Emergency Management Agency (FEMA), the State of North Dakota, and local sources, the city of about 165 people was able to improve drainage, move a lift station, and convert to open space floodprone lots where houses had stood. In addition, the county and state paid for the elevation of county roads, which improved access to and from the city.

"The people who had been under water were quite willing sellers after they went through the problems they had," Dockter said. The city also has taken possession of abandoned lots, so several areas provide open space, as well as ponding areas for excess water.

"People are really happy with what took place," Dockter said, after the 2009 flood subsided. "We got by the flood this spring without anybody having to move. We were able to use our sewer and water system all the time, and it just made life a little better."

In the county, Drain 11 is an open ditch, a channel that meanders for 26 miles from the northwest corner of the county to the Wild Rice River on the south side. In recent years, many improvements have been made to Drain 11. The Sargent County Water Resource Board cleared the channel of cattails that had blocked the flow in places. According to board president Jim Bosse and board member Roger White, improvements that help prevent erosion of the bank include angling the culverts, use of caps, and installation of rocks and steel piling. In some places, the bank was made less steep. On the channel that leads from the city to the main drain, new double tiles have replaced the old. The new, perforated tiles consist of a corrugated outer channel that is stiff and strong and resists cave-ins and a smooth inner channel that helps the water keep flowing over the nearly flat grade.



Sargent County, North Dakota



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Technical Assistance Program (HMTAP)**



FEMA

Matheny, Wyoming County Mitigates by Acquisition

Wyoming County, WV - The riverfront properties nestled along Laurel Creek in the Laurel Estates and Lillyton area of Matheny, West Virginia were home to 16 families that had suffered repeated flood damage. Wyoming County Emergency Services Director Dean Meadows describes this area as “the place in Wyoming County that has the most severe localized flooding and caused continual damage to property and homes.”

On July 8, 2001, severe storms hit this area again, and flooding caused a great amount of damage. This prompted Meadows to seek a grant from the Federal Emergency Management Agency (FEMA) through the agency’s Hazard Mitigation Grant Program (HMGP). HMGP assists states and local communities in implementing long-term mitigation measures following a major disaster declaration. Administered and funded by FEMA and the State of West Virginia, with the voluntary participation of the homeowners, an acquisition project was approved and undertaken. The properties were bought and the 13 stick-built and three pre-manufactured structures were demolished, returning the area to its natural state.

Through the program, Wyoming County became the new owner of the land with restrictions on future use limited to open green space. The county leases each property site to nearby property owners for \$25 a year. Where houses once stood, horses now graze, gardens flourish, and open green space is abundant.

In May 2009, four inches of rain fell in three hours and flooding again occurred in the area. “We not only eliminated repetitive flooding for those we bought-out, but we greatly reduced the damage done to the surrounding homes located in the area,” said Meadows.

“This is a win-win solution for all of us,” said Meadows. “The families no longer experience the heartache of continual flooding, the property owners take care of the land and the community has a nice green space which has become a source of pride.”



Wyoming County,
West Virginia



Quick Facts

- Year: **2001**
- Sector: **Public/Private Partnership**
- Cost: **\$408,260.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Brenton, Wyoming County Pre-Disaster Mitigation

Wyoming County, WV – In 2004, when Vance’s Trailer Park in southern West Virginia flooded, Dean Meadows, Wyoming County Emergency Services Director, knew he had to do something to help. The families in the nine mobile homes had repeatedly been flooded, year after year, including 2001 when the most severe storm in the County’s history swamped the trailer park.

Meadows knew that if he didn’t find a solution, the cycle of flooding, rebuilding, and flooding again, would continue for the nine trailer park homes. The solution was a Pre-Disaster Mitigation (PDM) voluntary acquisition project. A PDM is a competitive grant subject to Congressional appropriations to reduce the overall risk to people and property from future disasters, and to lessen reliance on Federal, State, and local disaster recovery funding.

After the families were moved to their new homes, most of which were in Wyoming County, the trailer park was converted to a community park that a local church volunteered to maintain. They also bought picnic tables, and recreational and playground equipment where today children play on the swings under the watchful eye of a proud community.

This PDM project paid off. During the May 2009 flood, the Guyandotte River rushed over its banks and covered the property with 3 feet of muddy water. This time no homes were damaged and no families were forced to leave. Also, the County, State, and Federal governments avoided funding costly disaster-related losses.

“This type of flood mitigation project is one hundred percent effective and having the church taking pride in their community and become caretaker of the recreational park is an added bonus,” said Meadows.



Wyoming County,
West Virginia



Quick Facts

- Sector:
Public/Private Partnership
- Cost:
\$105,484.00 (Estimated)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Pre-Disaster Mitigation (PDM)



FEMA

Mitigation Plays Strategic Role in Local Land Use Planning

Polk County, MN - The City of East Grand Forks, Minnesota is a shining example of a community successful in both reducing the threat of flooding and planning for a prosperous future. After the 1997 flood impacted 90 percent of the city and its residents, city officials uniquely tied their emergency management efforts to their planning efforts. The results have been a stronger, disaster-resistant community.

Even though the flooding of 1997 was catastrophic, it did not weaken community spirit. The city chose to revive itself and turn the disaster into a positive experience with forward-thinking results. The many mitigation projects directly influenced the immediate and long-term future of this prosperous city and gave the city a unique opportunity to plan a new, thriving future.

Planning for a new city is exactly what East Grand Forks has accomplished. Since the Red River divides East Grand Forks, Minnesota and Grand Forks, North Dakota, the cities coordinate their efforts by working with the Grand Forks – East Grand Forks Metropolitan Planning Organization. The East Grand Forks 2035 Land Use Plan considers the projected needs of the city, including flood protection and economic growth.

East Grand Forks lays at the confluence of Red River and Red Lake River. Although the threat of flooding has been considered since the city’s first Land Use Plan in 1978, it wasn’t until the devastating 1997 flood and massive buyouts that the city realized just how much the floodplain would dictate their planning efforts. Nancy Ellis, Senior Planner for East Grand Forks, said, “The mitigation we did after 1997 was a driving force behind our 2035 Land Use Plan. Our new public, green space and increased housing needs warranted specific action by city officials.”

Following the 1997 flood, the city implemented an Accelerated Acquisition Program using the Federal Emergency Management Agency’s (FEMA’s) Hazard Mitigation Grant Program (HMGP) administered by the Minnesota Division of Homeland Security and Emergency Management. The HMGP project allowed the city to acquire 370 flood damaged properties. As part of the HMGP regulations, deed restrictions were placed on all the newly acquired public properties to prevent future development and flood losses.

Not only did residents need to repair and rebuild, but city government buildings and services also had to relocate. The City Hall, library, and three public schools were relocated and built new after the flood. Their location had to be planned and laid out in the city’s new look. The city’s downtown business district, adjacent to over a hundred buyouts, was protected from flooding with an innovative invisible floodwall. The area has recovered to become stronger with more opportunity for economic growth.



Polk County, Minnesota



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$14,942,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Mitigation Prevents Disaster Declaration for Montevideo, Minnesota

Chippewa County, MN - The City of Montevideo, Minnesota knows the benefits of mitigation (reducing loss of life and property). They have been actively mitigating the threat of flooding from the Chippewa River since 1993, when they participated in their first Hazard Mitigation Grant Program (HMGP) acquisition project. The City's flood-fighting efforts have paid off. In March of 2009, the City experienced its sixth highest flood on record, and yet they had almost no need to assist individuals or businesses in fighting the flood; it had already been done for them through all the mitigation projects.

The Federal Emergency Management Agency's (FEMA's) HMGP, administered by the Minnesota Division of Homeland Security and Emergency Management, funded four separate projects to mitigate flood damages. In the four projects, the City received \$1,388,759 in Federal funds to acquire 74 floodprone properties. In addition to the HMGP funds, the City worked diligently to obtain other grants to acquire even more floodprone properties. A total of 131 properties have been acquired and removed from the threat of flooding in the City of Montevideo.

One neighborhood known as Smith Addition experienced flooding in 1993, 1997, 2001, and 2009 from the adjacent Chippewa River. The City has acquired 109 properties from Smith Addition, leaving only 21 properties occupied in the area. Of those remaining properties, only a handful are in Flood Zone A (the 1-percent chance floodplain), and the City would like to acquire those and remove the residents from the threat of flooding. Another area called Gravel Road is also floodprone and has been mitigated. There were 22 acquisitions in the Gravel Road neighborhood, with seven homes remaining, all protected by the levee system.

The City had a three-tiered goal: 1) eliminating health and safety issues associated with flood damaged structures, 2) eliminating problems with flooded sanitary sewer systems, and 3) permanently eliminating the need for costly disaster interventions. That goal came to fruition during the 2009 flood. The sixth highest flood proved to be simply a minor inconvenience to the City and its residents. There was no health and safety issue, no flooded sanitary sewer systems, and no costly disaster intervention. The water simply came and went without much concern.

It has all been a very positive experience for the City and its residents. The 2009 flood was the first time the City experienced such devastating flood levels with no damage or threat to life. The City was part of the Presidential Disaster Declaration for 2009 flooding (DR-1830), but they only received assistance through the Public Assistance (Infrastructure) Program. City manager Steve Jones explains the non-declaration by saying, "We weren't declared for Individual Assistance because so few individuals are threatened anymore. It's a great feeling to know that the mitigation has saved not only someone's home from damage but also the flood fighting efforts of the city, state, and Federal governments."



Chippewa County, Minnesota



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$1,388,759.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Gainesville, Texas Acquisition Project Saves Millions of Dollars

Gainesville, TX- The City of Gainesville is located near the confluence of the Elm Fork of the Trinity River and Pecan Creek in Cooke County, Texas. The City has experienced repetitive flooding along both of these streams. In the last 25 years, there have been significant flood events in 1977, 1979, 1981, 1989, 1990, 1993, and most recently in the spring of 2007.

In January 2002 as a result of an ice storm disaster (FEMA-1356-DR-TX), funding through the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) became available to a number of counties and cities in northern part of the State of Texas. The City of Gainesville applied for \$427,000 in Federal funds to acquire and demolish 11 properties along Pecan Creek (Project DR-1356-012).

The project was completed April 5, 2005. This action resulted in a savings of approximately \$2,300,000, as calculated using the FEMA loss estimation tool HAZUS-MH) in direct property damages, response, and recovery cost, which would have been incurred as a result of a 25-year flooding event (return period obtained from benefit cost analysis material provided by the City) during the flood event of June 2007. This flood event was part of the area-wide floods, which were later declared DR-1709-FEMA-TX.



Cooke County, Texas



Quick Facts

- Year: **2001**
- Sector: **Public**
- Cost: **\$427,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA



Kennebunk Acquisition, Demolition, and Elevation

York County, ME - Sitting on the banks of the Mousam River in Kennebunk, Maine on a lazy summer's day, you could never imagine the torrent that repeatedly floods the Intervale neighborhood. But during heavy rains, stormwater often overflows the river banks and floods 18 houses; 12 of these houses are along the river, and six are inland across Intervale Road.

This neighborhood has a history of flooding that goes back to 1953 with six reported events. None of the properties had flood insurance. Forty-two residents are directly affected, but the downstream effect from the flooding of this neighborhood is much greater, causing pollution from septic, oil, gas, asbestos, etc. It has had a ripple effect on neighbors, schools, businesses, municipal, and utility services.

The Town of Kennebunk decided after much town and neighborhood input that the only viable solution was to remove the willing homeowners from the floodplain either through buyouts or elevations.

The plan of action was for the town to apply for a Hazard Mitigation Grant Program (HMGP) grant through the Federal Emergency Management Agency (FEMA). The grant provides funds to states, Indian tribes, and local governments for long-term hazard mitigation projects following a major disaster declaration. Under this program FEMA pays up to 75 percent of the project cost. Either the state or the applicant covers the remaining 25 percent.

The grant was applied for in September 2007 and awarded in December 2007. The grant was for the acquisition and demolition of three houses and the elevation of eight houses. The demolished houses were burned down as both a training exercise for new fire recruits and as an opportunity to test the mutual aid abilities of area fire departments in a safe environment.

The cost of the project was \$1,503,875 the town paid the total local share of \$375,969. The project is 98 percent complete except for some final landscaping.

Now that the work is done, the Intervale neighborhood is once again an idyllic 1960s enclave of families and neighbors with a couple of new pocket parks that even have access to the Mousam River, which affords a variety of recreational opportunities.

Kennebunk officials report no more flooding problems in this neighborhood as of February 2009.

York County, Maine



Quick Facts

Year: **2007**
Sector: **Public**
Cost: **\$1,503,875.00 (Actual)**
Primary Activity/Project: **Acquisition/Buyouts**
Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Missouri Flood Buyout Saves Lives, Heartache, and Money

Jefferson City, MO — The record-setting and unprecedented flooding that lasted from the spring of 1993 into the early part of 1994 served as the catalyst for Missouri governments to look for solutions to the devastation and suffering caused by the massive floods. As a result, voluntary acquisitions, or buyouts, of flood-prone properties using Federal Emergency Management Agency (FEMA), State, and local government funds became the choice of action. The FEMA program has been widely successful and, once again, proved its worth during the floods of 2008.

When 37,000 people were displaced from their homes for prolonged periods during the 1993 flooding, State leaders embarked on a buyout program that became a model for the nation. Because of the large number of displaced residents, coupled with the prolonged flooding, State and local government leaders realized that program's success would be measured according to how quickly the buyouts would take place.

When the State was inundated once again in May 1995 to nearly the same 1993 record flood levels, the program's efforts gained popularity — 2,000 properties had been acquired in 50 separate communities. To date, the State and local governments have completed buyouts in 99 separate communities, totaling 4,045 properties.

"It was an endorsement that the effort was of great benefit to the victims devastated by repeated flooding, and we already had many satisfied customers," says Buck Katt, the deputy director for the State Emergency Management Agency (SEMA) at the time and the State's main architect of the plan.

Once homeowners have voluntarily participated in the program by selling their property to the local government, the land is deed-restricted and can only be used for open space and certain recreational activities. The specific parcel is no longer eligible for Federal disaster assistance and is the property of the local government.

Thirteen communities along the Mississippi River that had buyouts take place after the 1993 flood were flooded again in 2008. Of the 3,146 properties purchased among these communities, over 50 percent (1,623 sites) of them would have flooded again in 2008.

"Our buyout was so successful at keeping people out of harm's way and reducing damage," says Susan Sedgwick Pohling, St. Louis County's planning manager.

Individual Assistance payments, including grants made to residents of the 3,146 properties listed at these locations prior to the buyout (1993 floods) amounted to \$33.2 million. Because of the buyouts, Individual Assistance funding was unnecessary for those "bought out" families in the 1,623 buyout sites that flooded again in 2008. This significantly contributed to the reduction of Individual Assistance payments—currently less than \$2.1 million, in those 13 communities along the Mississippi River.

Perhaps more striking is the fact that the cost to acquire all 3,146 properties amounted to about \$37 million. The reduction in Individual Assistance payments alone has offset 85 percent of the cost to acquire the 3,146 properties.



Multiple Counties, Missouri



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Austin Pre-Disaster Mitigation Saves Homes

Austin, MN - When the City of Austin, located in southern Minnesota, implemented their most recent mitigation project, no one expected to reap the benefits so soon. In 2007, the city acquired and removed 15 flood-prone homes in the Wildwood Park area, which had flooded six times between 1978 and 2004. The acquisitions couldn't have come sooner. In June of 2008, the Wildwood Park area was flooded again and every acquired, but now vacant, parcel was once again flooded.

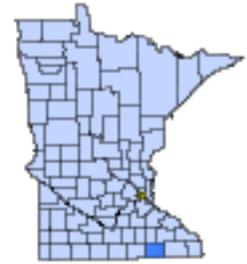
The city and its 23,000 residents are no strangers to flood damage. Since 1978 the City of Austin has acquired 240 homes and businesses in order to remove them from the threat of flooding. These acquisitions have saved the city and State and Federal governments millions of dollars in losses avoided as a result of the mitigation efforts.

The City of Austin may be best known as the home of the Spam, the canned meat product. But beyond Spam, the city is proactive and progressive in reducing its flood threat. After experiencing a devastating flood in 1978, local officials began to realize the importance of mitigation in a city prone to floods. With Cedar River, Turtle Creek, and Dobbins Creek converging in the center of the city, hundreds of homes had been flooded in the 1978, 1983, 1993, 2000, and 2004 floods. This degree of damage was unbearable to the residents and frustrating to city leaders trying to protect homes and infrastructure.

In September of 2006, the City received a Pre-Disaster Mitigation Competitive (PDM-C) grant to purchase 15 homes in Wildwood Park along the Cedar River. During 2007, the City of Austin implemented their PDM-C grant and purchased 15 homes in the Wildwood Park neighborhood, which would have been flooded in their basements and to their first floor in 2008 if they had not been acquired.

The PDM-C grant was true mitigation at work: acquiring a flood-prone home before it was flooded again. In 2004, the Wildwood Park area had over \$575,000 in flood damages. Add that value to the five previous floods and the area has incurred over \$2.6 million in damages since 1978. The city worked with the Minnesota Homeland Security and Emergency Management as well as with the Federal Emergency Management Agency (FEMA) to provide PDM-C funding for the \$2.2 million dollar project. The city had already developed a Comprehensive Linear Park System to manage the acquired flood-prone properties so the open space can be enjoyed by all its citizens. The Wildwood Park acquisitions will now make it possible for the city to connect bike trails in parks across the city.

In addition to protecting the 15 homes, the PDM-C project enabled the city to remove the sanitary sewer service to that area, which alleviated sewer backup problems to an additional 36 homes located near the acquisition area but away from the threat of riverine flooding. These 36 homes are no longer prone to sewer backup resulting from the Wildwood Park overland flooding since all sewer connections were removed and the floodwaters are unable to enter the sanitary sewer system.



**Mower County,
Minnesota**



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Pre-Disaster Mitigation (PDM)



FEMA

Moving People Out of Harm's Way

Kenosha County, WI – An excerpt from a May 2000 emergency bulletin announced: “Residents are strongly urged to evacuate until river levels subside.... Rapidly-rising swift currents will provide an extreme danger to residents and responders.” This announcement is a common occurrence for residents of Kenosha County, Wisconsin living along the Fox River between Highway 50 and Highway F. Low-lying land in this region is plagued by frequent, dangerous floods that threaten the safety of the residents and cause severe damage to homes.

The Illinois Fox River rises near Menomonee Falls, Wisconsin and flows through Waukesha, Racine, and Kenosha Counties in southeast Wisconsin for a total of 70 miles before entering Illinois. There are two rivers in Wisconsin called the Fox River. This particular river is designated as the Illinois Fox River by local residents as it flows out of Wisconsin and into Illinois. Flooding is common in Kenosha County, Wisconsin along the river, especially near the Towns of Wheatland and Salem and the Village of Silver Lake.

During the middle of the 20th century, the riverside was valued as a vacation or weekend get-away spot and many people from nearby cities built rustic cabins on the banks of the river. Later, as the area’s population grew, some families built year-round residences and even more constructed weekend cabins. The waterfront properties were occasionally flooded, but the owners kept coming back to clean up and rebuild. The river area provided the scenic beauty and outdoor recreation they treasured.

The private property in this floodplain has created an “urban interface” problem similar to those in the forested lands of America’s western states. Having a population adjacent to or in an area that frequently experiences natural disasters puts stress on local emergency management and law enforcement as well as public works.

When extensive, heavy rains enter the watershed for the Illinois Fox River, Kenosha County emergency management personnel and law enforcement officers keep steady contact with the National Weather Service to receive constant updates about rainfall and river-level predictions. When the river rises to hazardous flood-stage levels, the County Executive issues an emergency declaration to set in motion safety procedures to protect citizens in the path of floodwaters. During emergency declarations, county law enforcement officers personally warn residents of the imminent danger of fast-moving floodwaters and are prepared to provide help to evacuate them to safety if the need arises. The officers patrol the flooding areas in four-wheel drive vehicles carrying personal flotation devices in case people need assistance. During rescue efforts in the 1994 floods, a rescue boat flipped over in a fast-running current. Luckily, no one was killed in the incident.



Kenosha County, Wisconsin



Quick Facts

- Year: **1993**
- Sector: **Public/Private Partnership**
- Cost: **\$7,000,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Flood Mitigation Assistance (FMA)**



FEMA



Multiple Mitigation Measures Give Darlington an Elevating Experience

Darlington, WI - Located in the southwestern corner of Wisconsin, this rural city (population of 2,398) was founded beside the Pecatonica River and officially given the name of Darlington in 1869. During the past 172 years, this beautiful community has been at odds with the Pecatonica River, a medium-sized body of water that nearly encircles the city with coils of brownish water during floods. Normally, the river gently flows southward, then bends east until it bends abruptly north, east, south and east again, forming a tight horseshoe. It is at this horseshoe bend where trouble bubbles over and swamps Darlington when the river rises.

Flooding was deteriorating structures and drastically reducing property values all over town. The losses continued to grow with every clean-up and repair. The buildup of mold and mildew in downtown structures was destroying Darlington’s business infrastructure. The frequency of flooding in Darlington was approximately once every 20 to 21 years, but since 1950, floods began occurring more often.

During the onslaught of floods, the city’s mayor, Bev Anderson, with help and advice from State and Federal officials, and other community leaders began developing a come-back strategy by developing a flood mitigation plan. They used a multi-objective approach to understanding their watershed problems: consider all flooding solutions, identify community concerns, obtain expert advice, and built strong partnerships. Mitigation became the one word that could offer hope for everyone involved.

In the end, Darlington’s Flood Hazard Mitigation Plan became the first in the State of Wisconsin to be approved by the Federal Emergency Management Agency (FEMA). The plan called for business property owners to cover the costs of rehabilitation and historic preservation of their buildings; private homeowners encouraged to purchase flood insurance if they did not already have policies; and historic structures brought into conformance with current building codes and the requirements of the Americans with Disabilities Act (ADA). Meeting the ADA requirements called for constructing a shared, concrete, handicap-access ramp constructed in the rear of the downtown buildings. The ramp not only would serve several buildings, it also would act as a flood barrier.

Among the mitigation plan’s projects involved mitigating the city’s utilities, constructing flood shields, elevating buildings, and relocating buildings. Darlington’s wastewater treatment facility was relocated away from the flood zone. All major utilities such as gas and electric in the flood zone were raised as much as eight feet off the ground. Anything that had previously been covered by floods would now be high and dry.

Lafayette County,
Wisconsin



Quick Facts

- Year:
1992
- Sector:
Public/Private Partnership
- Cost:
\$2,300,000.00 (Actual)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA

Code Enforcement Plays Major Role in Floodplain Management

Rock Island County, IL - In a county that has a history of flooding and nearly 150,000 residents, enforcing building codes, zoning codes, floodplain ordinances, property maintenance codes, and trying to convince residents to adhere to sound building practices can be a tough job. However, it's a feat that the local Zoning and Building Director and inspectors have managed successfully by being consistent and persistent.

"Rock Island County has 13,000 parcels and 600 miles of road, and approximately 1,400 parcels are located in the floodplain," said Ray Nees, Director of Zoning and Building. "In order for floodplain management to work, the local official has to take a 'hard nose' stance."

With the Mississippi River to the north and west and the Rock River flowing through the center, the county is vulnerable to floods. In June 2008, flooding caused by severe storms resulted in a major disaster declaration for the State of Illinois, which directly impacted 25 counties. Damage in Rock Island County was minimal, partly due to Nees' floodplain management strategies.

Nees assumed the role of Zoning Investigator in 1995. To his dismay, flooding was the contributing factor for more than 85 repetitive loss properties in the county. His goal was to minimize the effects of flooding and save taxpayer dollars. The key: take mitigation measures seriously. By the middle of 2005, the number of repetitive loss properties had been cut in half despite floods reaching all time record depths. Nees estimates that without mitigation, the number of repetitive loss properties would be well over 200 today.

"Mitigation projects are probably the most effective steps somebody at the local level can take to save taxpayer dollars," said Nees. "We've done buyouts, and we've recommended elevations. At one point we had nine houses at once being elevated on Campbell's Island."

There is no preferential treatment when it comes to code enforcement. Everyone is expected to adhere to them. "We have done buyouts for insured flood victims, and we enforce the same regulations on those people who don't have insurance," said Nees.

While empathetic to flood victims' plight, Nees manages to remain steadfast in enforcing regulations. "If I allow a poor family to move back into a home that has not been cleaned and elevated, then not only am I endangering their health, I am allowing their entire family to be placed right back in harm's way. I won't be responsible for that," said Nees.

"The toughest part of a floodplain manager's job is when you've got to tell someone, whose property has been declared substantially damaged, that you [the property owner] must elevate your home or tear it down," said Nees. "Yet, you have to be tough about it and get flood victims to put themselves in a better situation."



Rock Island County, Illinois



Quick Facts

- Year: **1993**
- Sector: **Public/Private Partnership**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA



A Small Village With Big Concerns

Riverton, IL – The Sangamon River forms the west boundary of the Village of Riverton, a quaint community that 2,997 residents refer to as home. But the Village of Riverton has had a long flood history. To lessen the impact of floods on its residents, the village joined forces with other communities in Sangamon County to devise a plan. Acquisition was definitely the mitigation measure of choice, and council members have encouraged the creation of green space in floodplain area.

“This was the second time these homes were hit. The first time was in 1994,” said Linda Viola, Office Manager and Grant Administrator for the Village of Riverton. “We knew that something needed to be done.”

Riverton is 550 feet above sea level. The village has a total area of 2.1-square miles: 2-square miles of land and 0.04-square miles of water (1.93 percent). Heavy rainfall causes the creek, which runs through the middle of the Riverton, to frequently overtop its banks.

The Acquisition Project was initiated in July 2002 and completed in August 2006. Riverton received a grant totaling \$272, 867.66 from the Federal Emergency Management Agency (FEMA) through its Hazard Mitigation Grant Program (HMGP). HMGP pays 75 percent of approved projects that will prevent or reduce damage from storms and other natural hazards. These grants are made available for both public and private projects.

“We filled out all the grant information and we notified the homeowners. They also knew that they had a choice,” said Viola. “They could choose to participate or not. Participation is voluntary. We completed the project without any major problems.”

Continued Viola, “When you buy someone’s home, they always think that it’s worth more. There were some who disagreed with the appraisal. The properties were appraised a second time. The homeowner has a right to request a second appraisal.”

Buyouts of floodprone homes located near the Sangamon River began in July 2004. The average value was \$75,000 and total project cost was \$376,048.66. The village acquired six homes that were demolished, resulting in open space within the floodplain.

A June 2008 flood event tested the success of the acquisition project as waters from the Sangamon River crept upon the 140,506-acre tract of land, now void of homes. Water rose six feet above flood stage. It was estimated that the water would have reached at least two to three feet inside the six homes had they not been acquired.

A local alderman reportedly contacted the State Hazard Mitigation Officer Ron Davis who acknowledged, “It was great this year when the waters came up, [and we were] able to sit back and relax and not have to mobilize our forces to fight the flood.”

“Those [acquired] homes were in the floodplain. Flooding would continue to occur,” said Viola. “I don’t know how the people could have lived with the flood and continue to rebuild in the same area, knowing that it would happen again. We found a way to help them.”

Sangamon County, Illinois



Quick Facts

Year: **2002**
Sector: **Public**
Cost: **\$376,048.00 (Actual)**
Primary Activity/Project: **Acquisition/Buyouts**
Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Illinois County Applauds Buyouts

Sangamon County, IL – In May 2002, major flooding occurred in the county when the South Fork of the Sangamon River reached the highest level in a 50-year period and the Sangamon River exceeding the 100-year flood elevation. It was then that the county decided to stand firm in the use of acquisitions (buyouts) as a means of protecting its citizens from the effects of flooding.

Linda Wheeland, Senior Planner with the Springfield Sangamon County Regional Planning Commission, recalls the county’s participation in the State of Illinois’ Buyout Program.

“At that time [alluding to the Great Flood of 1993], we had an area in the county that had been a fishing camp, probably for about 100 years. Over those years people had built cabins or placed mobile homes on the property,” recalled Wheeland. “The property, known as Driftwood Acres, is located at the confluence of the South Fork of the Sangamon River and Sugar Creek. In July 1993 and again in the spring of 1994, it was completely inundated [with water]. People couldn’t get in or out.”

Driftwood Acres was a 55-acre parcel located entirely in the floodplain and had been used as a river camp since the late 1800s with over 40 structures. The structures and their contents were often damaged by floodwaters, access to the area was cut off, and contamination of the water occurred. The Federal Emergency Management Agency (FEMA) and the Illinois Emergency Management Agency (IEMA) offered a solution to use Hazard Mitigation Grant Program (HMGP) funds to execute a buyout of the floodprone property.

“The property was owned by one individual. We didn’t meet with any resistance from him as far as participation in the buyout program. He knew that it was voluntary,” said Wheeland. “He lived in Texas. He had inherited the property and just allowed people who were living on it to remain there.”

Preliminary approval for the project was granted in March 1996. Closeout of the project was February 1999. The total project cost was \$92,485.76. All of the structures were removed, the concrete road was excavated, and the area has returned to a natural state. The county plans to develop a wetlands-banking project on the property to offset the impact of a planned highway-construction project.



Sangamon County, Illinois



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$373,362.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Liberating Independence

Buchanan County, IA—The scenic Wapsipinicon (“Wapsi”) River meanders into the City of Independence along low-laying banks that are shouldered by an historic rock mill, grassy parks with walking paths, and a few scattered homes. Independence was once on the receiving end of devastating floods; many had accepted flooding as a bittersweet part of living by the river. While townspeople were frequently scurrying to make decisions about moving to safer ground or staying to fight the floodwaters, city officials were seeking ways to secure the community and its resources. Answers came in the form of Federal grants designed to assist communities in acquiring properties that have been damaged severely or repetitively by floods.

In 1993, the city acquired funding from the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) to start their flood-prone property acquisition initiative. Streets along the Wapsi River that were once lined with flood-prone homes and businesses were being transformed into green spaces. Folks that had tolerated years of repetitive flooding were being moved out of the floodplain to higher ground. As the acquisitions progressed, Independence took additional steps to protect its citizens from future flooding.

On June 7, 1999, the city established a new building code that exceeded the Base Flood Elevation (BFE) requirement. After enduring three disastrous floods in the 1990s, city officials realized the optimal way to protect homes along the river was to raise elevation requirements on new construction to three feet above BFE. Since then, the Wapsi River has flooded several times, proving the additional elevation mitigated further flood damage. Other mitigation measures have contributed significantly to reducing financial drain on the city.

With funding from the HMGP, Independence has acquired 84 homes, relocated two homes, and created three public parks. These projects were funded through five separate disasters over a period of 18 years for a total of \$3.4 million. Every dollar funded toward a FEMA project equals \$4 in future savings. In addition to saving money, numerous changes have been made that may enhance life for many people living along the river.

The city takes pride in the three parks developed on open green spaces provided by these acquisitions. Independence RV Park at the entrance to town has 42 campsites that are often full during the summer. The grounds of Veterans Memorial Park are located beside the historic rock mill in downtown Independence. This park features an army tank and a Howitzer cannon on display, and a large gazebo overlooking the river. Located on the other side of town is River Walk Park, which offers covered picnic areas, an amphitheater, walking trails, and playgrounds.

Each year on the Fourth of July, the community gathers in the park to enjoy the festivities and to celebrate its “Independence.” As the fireworks light the evening sky and reflect off the river, the community of Independence shares a new sense of liberty on safer, higher ground.



Buchanan County, Iowa



Quick Facts

- Year: **1990**
- Sector: **Public/Private Partnership**
- Cost: **\$3.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Rio Grande Valley Buyout Moves Floodplain Residents Out of Harm's Way

Cameron County, TX—In the summer of 2008 when Hurricane Dolly swamped the old neighborhood, now largely vacant ground, she unleashed nearly a foot of rain over Antonia Iberra's old home, but nobody was home. In 2006, Antonia and most of her neighbors had moved out as part of a government floodplain acquisition program.

Most of what remains of Del Mar Heights today is only memories, and they are not good ones for Antonia. "It flooded there so much—oh, yes, it flooded every time it rained," she said. "I suffered there for 17 years."

When the government bought her house, Iberra recouped enough money to buy a better house, free and clear, in a safe neighborhood.

"We had built our own house there, from whatever we could find," Iberra said from the shaded porch of her family's pink-framed house. The pleasant neighborhood she lives in now is a far cry from the house in Del Mar Heights. Her husband, Moises, looks after a few black chickens in the backyard, and she cultivates flowers.

"It was all we had—that old house. Every time it rained, we could not get out. I had to put plastic bags on the shoes of the children and walk with them for a long, long way through the mud and the dirty water"—she measured up to her thigh to show the depth—"to try to get the bus to school. I had to carry the little ones. My husband is disabled. An ambulance could not get there when people were sick."

Before the buyout, the residents of Del Mar Heights lived with chronic, contaminated flooding that trapped them in their isolated south Texas neighborhood in rural Cameron County, Texas. The unincorporated 300-acre tract is at the southernmost tip of Texas: 20 miles to the south is the Mexican border; 20 miles east is the edge of the Gulf of Mexico.



Cameron County,
Texas



Quick Facts

- Year: **2002**
- Sector: **Public**
- Cost: **\$1,300,000.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding:



FEMA



When Enough is Really Enough

Douglas County, IL– Located along the Embarras River, Villa Grove, a small town of only 2,553 residents, is prone to flash floods as well as river flooding. The Jordan Slough and the Embarras River are of significant relevance. In 1994, there was a flood of record, which warranted coverage by CNN. It was during this event that Jackie Athey, City Clerk for Villa Grove, found herself in a quandary as to how to handle the flood.

“I moved to Villa Grove during the fall of 1991. I knew that the town had some flood history,” said Athey. “My grandparents had owned a house there since the early sixties.”

As a child, Athey recalls that her grandmother placed her appliances and cabinetry on the platforms housed in the garage.

“My grandmother had 14 kids. She had an extra refrigerator, freezer, and cabinets stocked. She had to get a step stool to reach them,” said Athey. “As a kid, I never thought about why these things were raised.”

Following the death of her grandparents, Athey talked her husband into purchasing the old homestead for \$20,000. They then increased its value by doing major renovations.

“We were first time homeowners. We had flood insurance because the mortgage required it, but we had a big deductible and no content coverage,” said Athey. “The agent talked us into a \$5,000 deductible so it would lower our premium and we could make our house payment.”

Douglas County, Illinois



Quick Facts

Year:

1994

Sector:

Public/Private Partnership

Cost:

\$296,441.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA



Doing Something About the Floods

DeWitt County, IL – Located in the heart of central Illinois, the town of Clinton is one of the most productive agricultural areas in the nation. While trying to maintain productivity, the town has to contend with floods. The city has a total area of 2.7 square miles, all of it land, with about 2,500 acres draining to the northeast of Clinton. So why is flooding an issue? It is attributed to the Goose and Coon Creeks overflowing into the floodplain.

Goose Creek drains into a reservoir located at an old railroad yard. Years ago, that was a way to collect water for the steam engines. Through the years, the railroad yard filled in part of the reservoir, minimizing its capacity. Through modern improvements, farmers now drain their soils faster and more efficiently, thus, increasing the volume and velocity of water coming into the reservoir and then causing the reservoir to overflow.

Tim Followell, Administrative Assistant to the City Council, knows the town’s flood history as far back as 1968 and recalls one particular episode.

“I always use the house that used to sit at the corner of Jefferson Street and Taylor Street as my example. The gentlemen that owned the house had to be picked up by boat,” said Followell. “He was sitting on the peak of his roof, holding his TV. The single story house was all but four feet under water.”

In 1993 and 1997, Clinton experienced flooding events. In the 1997 event, 54 parcels were affected. This same parcel area has flooded three times before in the past 29 years. It was the 1997 event that persuaded Clinton to consider buyouts as a means of mitigation.

Pointing out the buyouts on the city map, Followell said, “We saw it as a plus to permanently help those people by assisting them in finding better accommodations instead of putting them at risk whenever it [the floodwaters] decided to come back.”

Homes in the affected area were valued, on the average, at \$55,000. The acquisition project acquired 40 homes, three commercial buildings, and 14 vacant lots. These acquisitions added to community green space.

“The owners knew they would not be allowed to re-build [in the same area] if flooding ever occurred again,” said Followell.

There was one business owner who chose not to participate in the buyout. He was confronted with floodwaters again in June 2008. He reportedly received two to three feet of water in his building.

De Witt County, Illinois



Quick Facts

- Year: **1996**
- Sector: **Public**
- Cost: **\$1,043,100.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Historic Town's Flood Concerns Alleviated With Buyouts

Champaign County, IL – Established in 1827, Sidney is a township in the Champaign-Urbana metropolitan area. As far back as residents can recall, the village has been confronted with flooding issues. Boating, a sport that is relished today, was a matter of necessity as far back as 1913 for Sidney residents attempting trips into town as water would simply inundate the city’s main street.

“In 1939, water came up to one inch of entering into the town’s hall,” recalls Eleanor Fear, a former librarian for the town. “Since then, it has repeatedly come very close to that, about three inches.”

With more than 50 percent of its landmass located within a floodplain, Sidney’s residents continue to ready themselves for flood events.

“The Salt Fork of the Vermillion River empties into the small creek that runs through the village. We still get lots of rain and lots of flooding,” said Janet Akers, village clerk.

Akers has been the village clerk for approximately 16 years. In that role, she also serves as grant administrator. Sidney’s initial attempt at flood mitigation came in the form of an acquisition project in August 1999 following a July 1993 flood event. The project called for buyouts of 10 homes, which reportedly received the brunt of the flood.

“The water flows all over town but the north end seems worst. These were the houses that sustained the worst damage,” acknowledged Akers. “They would always get the brunt of the flooding. The way the water travels, it’s close to their property.”



Champaign County, Illinois



Quick Facts

Year:
1993

Sector:
Private

Cost:
\$381,363.00 (Actual)

Primary Activity/Project:
Acquisition/Buyouts

Primary Funding:
State sources



FEMA

Multi-Agency Flood Mitigation Effort Transforms, Beautifies Missouri Community

Wayne County, MO - It's a long way from the terror of a flood to a happy park, but that's what's happening in Piedmont, Missouri where a cooperative effort is moving people out of harm's way and saving lives and taxpayer dollars.

Located in southeastern Missouri, Piedmont, is no stranger to flooding. The McKenzie Creek flows south, directly through the center of this small community before emptying into the Black River. In the last two decades, flood damages to residential and commercial properties, structures and contents, averaged \$584,000 annually, according to Federal records.

Devastating floods struck in 1982, 1983, 1993, 1995, and as recently as March 2008. Funding from the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), the U.S. Department of Agriculture (USDA), the U.S. Housing and Urban Development (HUD) Community Development Block Grants (CDBG), and other sources has paid for clearing many structures out of the flood zone.

The agencies' voluntary home-buyout programs have enabled the City of Piedmont to transform lower-value, flood-prone properties into parks, ballfields, trails, and other community assets. More than 125 property owners have participated in the buyout program during the last two decades when floods struck again in March 2008.

"Earlier floods [since the buyouts] didn't have the power or force of this year's [flood]," said former Mayor Gaylon Watson after the March 2008 flooding, a long-time proponent of buyouts. "We'd be picking up bodies if the buyouts hadn't taken place."

"People would have died this year," agreed DeWayne Robertson, who moved from the flood zone with his elderly parents after the 1995 high-water event. "The water came up so fast."

Interest in the buyout program remains high, particularly when the McKenzie Creek overflows its banks. City Clerk Tammy Thurman said she had more than 70 inquiries on the program within days of this year's high-water event.

The real impetus for the buyout program began following the 1993 flood, one of the most devastating and significant disasters in the history of the Midwestern U.S. Just two years later, a flood of nearly the same magnitude struck again. A public meeting to initiate the voluntary buyout program was held in March 1995.

Over the years, City officials have become adept at bringing together stakeholders and program sponsors to mitigate flood damages while turning buyout properties into award-winning public space. Additionally, Piedmont officials have found funding, grants, and private donations to accomplish the transformation. The cost to the City's taxpayers has been less than 1 percent of the nearly \$4 million project.

FEMA's HMGP provides funding to the State as the program grantee. The State in turn provides funding to qualified local governments to purchase properties in the flood zone. Homeowners must voluntarily agree to sell their properties, and once the local jurisdiction takes title, all structures are razed and turned into limited-use public space.



Wayne County, Missouri



Quick Facts

Year:

1993

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Residential Buyout Program Eliminates Repetitive Flood Loss

Arnold, MO - The City of Arnold (pop. 20,082) is a thriving, prosperous community located just 20 miles south of St. Louis where the Meramec River joins the Mississippi. The Meramec, flowing south, forms the eastern border of the city. But in the late spring/summer of 1993, great floods struck hard across the Midwest, inundating northeastern portions of Arnold and damaging more than 225 properties. While the potential for flooding is always a fact of life in Arnold, the 1993 flood was the most significant and devastating flood in the city's history.

Arnold residents William and Kathy Flanigan were better prepared than most. When it became apparent flooding was imminent in mid-July, they picked up their possessions and moved nearly everything they owned to higher elevations – to seven separate locations in all. A 16th birthday party planned for their daughter had to pass without celebration.

“Life happens. Birthdays and funerals go on. Then you have to fit a flood in,” said Kathy Flanigan.

But returning home in August after the water subsided, the Flanigans found water had completely filled their basement and reached eight inches above the first floor.

Following the 1993 flood, the Flanigans were one of 528 Arnold households to apply for Federal disaster assistance. Between the disaster housing assistance program, individual and family grants, and low-interest loans from the Small Business Administration (SBA), the recovery costs totaled more than \$2 million. The National Flood Insurance Program (NFIP) paid another \$2.3 million to the households in the buyout program.

Mayor Mark Powell noted that the combined disaster assistance did not include the human costs, such as lost wages, missed work, and the overall effect on the local economy. He further estimated the city's cost for public services, such as sandbagging, health services, and cleanup, averaged about \$10,000 per day over the April through September period that high water threatened the community in the early stages of the flood.

Since the early 1980s, city officials have been actively encouraging property owners in the 100-year flood zone to either relocate or take steps to protect their properties. Of the other methods that protect property owners from and prevent flooding, the buyout program made the most sense to Arnold officials. A proposed levee system studied in a 1976 report by the U.S. Army Corps of Engineers (USACE) would not be cost effective, said city administrators.

For the voluntary buyout program in February 1994, more than \$4.3 million in Federal Hazard Mitigation Grant Program (HMGP) funding was approved. The Federal contribution to the program was 67 percent of the cost, while a Community Development Block Grant and State and local funding paid for the rest. Arnold officials aggressively encouraged residents' participation. The Flanigans, and others, received formal written notice that assistance was available to help them relocate out of the flood zone, and word quickly spread.



Jefferson County,
Missouri



Quick Facts

- Year: **1993**
- Sector: **Public**
- Cost: **\$4,381,191.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Ten Years Toward a Flooding Solution

Kingfisher, OK – Over the past 10 years, residents in a six-block area cringed whenever authorities forecasted severe rain for their area. And on August 19, 2007, two local creeks ended up spilling from their banks and poured dirty brown floodwater downtown. But thanks to two programs that the City of Kingfisher used to buy frequently flooded lands, the City created places for water to flow and, therefore, mitigate some impacts of flooding.

“The vacant land program offered Kingfisher citizens many benefits. Frequent flooding had displaced residents, but with the acquired open space the community controlled emergency costs and, in dry times, residents used the open space,” said City Clerk and Floodplain Manager William Tucker.

The City’s buyout program, established in 2002, gave citizens owning vacant land that flooded more than once the option of selling the lot to the City for \$300. Within five years, the City invested \$20,000. The resulting sales relieved these owners of taxes and maintenance costs for the properties sold.

Because flooding in this six-block area of Kingfisher occurs more than annually, the City expanded its acquisition efforts with funds provided by the Federal Emergency Management Agency (FEMA) through its Hazard Mitigation Grant Program (HMGP) and managed by Oklahoma’s Department of Emergency Management. The HMGP infused \$170,000 to buy houses while the City added the 25 percent match.

A single flooding event typically costs the City of Kingfisher more than \$200,000 in this six-block area. But when the August flood struck, the buyout program ended up saving the taxpayer money – as well as reducing the loss of personal items – and peace of mind for those living in the flood-prone area. Without the buyout program, the purchased homes would have suffered an estimated \$170,000 in damage to property and contents with this one flood alone.

Tucker said, “These two programs have made a world of difference in the lives of our residents because when it rains they don’t worry, and that means more than money can buy.”



Kingfisher County,
Oklahoma



Quick Facts

- Year: **2001**
- Sector: **Public**
- Cost: **\$190,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Local Sources**



FEMA

Where O, Where Does the Water Go? Not in My Home

Miami, OK – On July 3, 2007, floodwaters from the Neosha River and Tar Creek inundated homes in six neighborhoods of Miami, Oklahoma. While most homeowners sought temporary housing, 19 former residents of the affected neighborhoods rode out the storm from the security of their newly acquired housing since selling their formerly flood-prone habitats as part of the City of Miami’s acquisition projects.

“The water covered so much area that residential properties became uninhabitable and local businesses had to close,” said Gary Brooks, Emergency Management Director for the City of Miami, Oklahoma. City emergency management estimated the disaster damage to exceed \$6 million.

The City looked to buy flood-prone properties with help from the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) and Repetitive Flood Claims Grant Program (RFC). From 2002 to 2006 both programs provided Miami with a total of \$1,149,555. Over all, the City has acquired 34 properties through both programs.

The HMGP assists State and local communities to implement long-term mitigation measures following a major disaster. FEMA can fund up to 75 percent of the eligible cost of each project with the local government funds covering the remaining 25 percent. Funds are administered to the local governments through the State.

The RFC provides mitigation funding for structures insured under the National Flood Insurance Program (NFIP) that had one or more claim payments for flood damage. The funds are available to NFIP participants who are not able to meet the cost share of other FEMA grant programs.

Participation in acquisition projects is strictly voluntary. Those homeowners who have participated in acquisition projects gain peace of mind as future flood loss to their home is eliminated. In addition, homeowners receive fair compensation, a chance for a new start, recovery without loans, and the potential to recoup financial investment of devalued property.

“Acquisitions add another layer of flood deterrents in Miami,” said Brooks. “In July, however, when up to 40 inches of water fell in just a few days, acquisition proved the only complete protection against flooding.”



Ottawa County,
Oklahoma



Quick Facts

- Year:
2001
- Sector:
Public
- Cost:
\$1,149,555.00 (Actual)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA

Community Partners Aid Citizens Using the Buyout Program

Cape Girardeau, MO—For a city on the western shore of the Mississippi River, city officials and citizens are determined not to let that the river swallow up their homes as it did during the great Midwest floods of the 1990s.

In the late 1950s, the U.S. Army Corps of Engineers built an impressive concrete floodwall to prevent the river from flooding homes and businesses along the river, which was successful in holding back the swollen river for several years. In 1993 as floodwaters rose, some sections of the city were exposed to the river and resulted in 151 homes being damaged. The city spent \$442,000 on sandbagging, extra crews, renting emergency generators, and flood debris removal and cleanup. The 1995 flood cost another \$300,000.

Out of these crises, a partnership emerged among the Federal Emergency Management Agency (FEMA), the State Emergency Management Agency (SEMA), the Missouri Department of Economic Development (MDED), the Salvation Army Midland, the Interfaith Ministries, and the City of Cape Girardeau. Together, these organizations combined resources and addressed each family’s needs, making it possible for them to participate in a flood buyout program.

Buyouts are based on the premise that using tax funds for buyouts saves taxpayers money in the end from not having to pay for repeated disaster recoveries. Once purchased, damaged structures are demolished and the land converted to deed-restricted permanent open space.

For the City of Cape Girardeau, the buyout program was highly successful. FEMA contributed more than \$1.14 million to a \$2.6 million program to purchase 109 properties. Residential structures in the 100-year floodplain now number only 17.

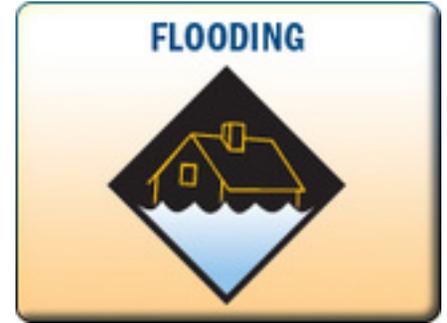
During the March 2008 flooding, the city experienced only some closed streets, basement seepage, and limited flood damage.

“The buyout effort demonstrated how communities could take care of their residents in a crisis,” said Housing Assistance Coordinator Stephen S. Williams, who worked on the buyout program for the city at the time.

“The key to the program was identifying the needs of the people in the community,” added Ken Eftink, director of Development Services for the City of Cape Girardeau’s Division of Planning Services.



Cape Girardeau County, Missouri



Quick Facts

- Year: **1995**
- Sector: **Public**
- Cost: **\$2,411,398.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Gloucester County Hazard Mitigation Programs Local Government Continues Commitment to Mitigation

Gloucester, VA - Because of its proximity to the mouth of the Chesapeake Bay, Gloucester County, particularly its Guinea community, is subjected to periodic flooding from coastal storms. Flooding is exacerbated in the coastal areas because of the numerous wetlands, streams, and creeks in the County.

With three flood events over four years, the County realized the need to do something different to protect its citizens and their property. Although many families had obtained a Standard Flood Insurance Policy through the NFIP, most of the homes in the affected areas were located just inches above the ground. The limited elevation of the structures led to severe damage to hundreds of home in the community during these storms.

Shortly after Hurricane Isabel came through the County in September 2003, the County applied for its first grant through the HMGP. In the fall of 2004, Gloucester County hired a planning firm to assist with applying for and managing its storm recovery efforts. The purpose of the application was to help purchase destroyed homes to reduce future losses or to help elevate the homes where the owners wished to rebuild in the community. With the help of the planning firm, the County received its first Hazard Mitigation Grant in the spring of 2005.

In Phase one of the Isabel Hazard Mitigation Grant Program 15 properties were purchased and demolished and six homes were elevated. Phase two was awarded in the summer of 2005 and has resulted in the purchase and demolition of one additional home with work under way on the elevation of 22 additional homes. The County is also working on using its extra funding from the Isabel grants to potentially elevate an additional six homes from its FEMA-approved substitution list.

A subsequent grant provided because of flooding from Tropical Storm Gaston will allow another three homes to be elevated by the middle of 2008. A grant application for the elevation of 18 additional homes was submitted and awarded in the spring of 2007. To comply with Gloucester County's floodplain ordinances, all homes are elevated so that the first floor is at least one foot above the established Base Flood Elevation.

The County has also decided to apply for a 2008 PDM grant with the intention of purchasing five homes for clearance and creating permanent open space in some of its more problematic Zone VE areas. These will not only help reduce the potential loss of life and property in the affected areas, but will also help reduce future pollution of the Chesapeake Bay.

Additionally, the planned acquisitions will be in keeping with the Governor's initiative to acquire or conserve 400,000 additional acres of open space throughout the Commonwealth.

The acquisition of the dozens of homes that were located in various VE-10 to VE-12 zones located along the coast of Gloucester County has allowed owners to sell their homes at the fair market, pre-storm value and relocate to a safer section of the County.



Gloucester County,
Virginia



Quick Facts

- Year: **2003**
- Sector: **Public**
- Cost: **\$5,400,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Snohomish County Chatham Acres Acquisition

Chatham Acres, WA - A flood in December 1999 caused major damage to Chatham Acres, a small community located on the North Fork Stillaguamish River. In a process known as avulsion, the river abandoned its existing path and cut an entirely new 200-foot wide, 800-foot long channel through Chatham Acres before rejoining its original course.

As the river's path changed its course, one home was washed away. Fortunately the house was unoccupied at the time and no one was hurt. Ten other residences in the area, however, were immediately threatened by the avulsion. Something needed to be done to prevent additional damages or destruction of the homes by flooding or further migration of the river.

Most of the homes in Chatham Acres had been constructed in the 1930s, before the implementation of Flood Insurance Rate Maps (FIRMs). Unknowingly, the homes were built within the Stillaguamish River's floodway.

In response to the immediate problem, the Chatham Acres Homeowner's Association (CAHA) applied for and received approval to construct a section of rip-rap along the affected shore.

It became clear early in the project that the rip-rap would suffice only as a temporary solution. Soon after it was in place, three more flood events caused the loss of an additional 50 feet of riverbank. The river had also begun to erode the shoreline behind the rip-rap.

In addition to the ongoing erosion at the site of the 1999 event, an even larger threat was developing 650 feet upstream from the rip-rap location. The Stillaguamish River appeared to be changing course and would likely enter Placid Creek, a parallel stream to the Stillaguamish, which would lead to even greater and more damaging avulsion throughout the area.

In June 2002, an application was filed for the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) requesting funding for the purchase and demolition of the Chatham Acres homes. The proposed removal of the residences and restoration of the area to its natural state offered life sustaining, ecological, and financial benefits.

The most important advantage to the acquisition approach was safeguarding the lives and property of those in the endangered area. With the residences gone, not only would the immediate threat be resolved, but any potential problems arising from future flooding and avulsion would be removed as well.

The County agreed as part of accepting the grant to never develop anything on the property and put restrictive easements on the property title to ensure this. Another major reason the acquisition strategy was selected was due to its favorable effect on the area's ecology.

During the course of the project, some positive developments occurred. While assessing the properties for the demolitions, the contractor determined that much of the house material could be recycled for future use. When calculating the value of the reclaimed material, in comparison with the originally quoted figure the demolitions would cost, a significant savings resulted. Additionally, two of the homes designated as historic were saved and relocated prior to the scheduled destruction.



Snohomish County,
Washington



Quick Facts

Sector:

Public

Cost:

\$1,899,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buying Out Time

Gurnee, IL - As far as natural hazards go, the Village of Gurnee in Lake County, Illinois, is primarily affected by the flooding of the Des Plaines River. In the autumn of 1986, Gurnee suffered from the most devastating flood in its history. Since then, Gurnee has taken extraordinary steps to lessen flood damages to its properties, and the positive results can already be seen.

During the last week of August of 2007, Gurnee was once again threatened with rising floodwaters from the Des Plaines River. However, the effects of the flood were minimized thanks to two main mitigation efforts. The first was a wetlands restoration project that was recently completed by the Lake County Forest Preserve in an area north of Gurnee. The second involved a series of property acquisition projects pursued by Gurnee in the last 20 years.

Wetlands are areas that receive and accumulate floodwaters, thereby slowing and reducing downstream flows. They also serve as natural filters, improve water quality, and provide habitat for many species of fish, wildlife, and plants.

Over the centuries, many modifications to the landscape for agriculture and urban uses have significantly increased flooding from the Des Plaines River. The growing need for solutions to this problem resulted in the Des Plaines River Wetlands Demonstration Project.

Using funding provided by federal, state and local governments, foundation grants, and individual donors, the Wetlands Demonstration Project has transformed abandoned farm fields and gravel quarry pits into a rehabilitated ecosystem along the upper Des Plaines River in Lake County.

Restoration began in 1986, and the results have been very rewarding, especially for the residents of Gurnee, since the restored wetlands played a large role in delaying flood waters and reducing flood heights this last August.

After being selected by the Lake County Stormwater Management Commission (SMC) as a pilot for a community-wide plan in 2000, Gurnee started to aggressively pursue a Flood Mitigation Plan. Having a plan has opened doors for federal and state grants, and it has raised awareness in the community. Gurnee's Flood Mitigation Plan provides carefully considered directions to ensure the best use of public funds.

In 2003, Gurnee received a little over \$600,000 from a Pre-Disaster Mitigation Grant from the Federal Emergency Management Agency (FEMA), which was administered by the Illinois Emergency Management Agency (IEMA). They also received approximately \$240,000 from the Illinois Department of Natural Resources (IDNR).

These grants helped them purchase five properties and remove them from the floodplain. Since 1986, Gurnee has successfully removed almost half of the 45 structures on the floodplain and returned those properties to open space, often using their own money when grants were not available.

Gurnee's village officials understand that it takes a combined effort, effective planning, and long-range vision to accomplish their goals.



Lake County, Illinois



Quick Facts

- Sector: **Public/Private Partnership**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

The Power of Collaboration in Kirkland, IL

Kirkland, IL - Les Bellah, former Mayor of Kirkland, Illinois, knows the power of water. According to Bellah, in July 1996, a storm dumped eighteen inches of rain on his town in less than twelve hours. The Kishwaukee River jumped its banks and flooded the Congress Lake Estates Trailer Park. Water came up to the windows of many trailers and left a two-foot-high watermark on Kirkland's Village Office.

The 1996 storm ultimately destroyed the Congress Lake Estates Trailer Park and left masses of debris in its wake.

After the waters receded and the debris was all hauled away, the Village faced a serious question: what to do now with the devastated Congress Lake Estates Trailer Park? Local leadership prudently chose to go down the path of mitigation.

Within months of the flood event, Kirkland leaders collaborated with the Federal Emergency Management Agency (FEMA) and the State of Illinois on a hazard mitigation acquisition project aimed at buying out the mobile homes at the Congress Lake Estates Trailer Park.

Once the trailers were all purchased at pre-flood market value, Kirkland residents decided to create a natural park where the trailer park once stood, thereby both beautifying the area and preventing the location from future flood damage.

The former site of the Congress Lake Estates Trailer Park has now been transformed into Pioneer Park, a large green space by the scenic Kishwaukee River.

"We are very proud of our park," said Bellah. "With this last flood of August 2007, we proved one more time that we made the right decision. The area flooded again, and it would have affected homes if they were still here. So the project really paid off."

According to Bellah, Kirkland residents were ecstatic about the results of this project. "We are sad for all the people who lost their homes during the flood of 1996," he said. "But through foresight and some good decisions, we were able to turn the whole experience into a positive thing."



DeKalb County, Illinois



Quick Facts

- Year: **1996**
- Sector: **Public/Private Partnership**
- Cost: **\$1,600,000.00 (Estimated)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA



Homes Removed from Harm's Way Along the Missisquoi River

Troy, VT - Just a short drive on River Road southeast of North Troy is an area adjacent to the Missisquoi River that floods every year due to spring thaws and summer's heavy rains. A single-family home on one acre of land and a small farm house with its farm outbuildings on 15 acres were the heaviest hit properties. Each time the cost was about \$20,000 for lost farm animals and crops and for cleaning and repair.

In June 2002, Orleans County experienced a flooding event categorized as a 500-year flood. At the peak of the flooding, Missisquoi River waters rose to 18 inches on the first floors of both homes.

The disaster declaration resulting from this flood gave the community the opportunity to apply for funds through the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP). Collaboration between the Town of Troy, Vermont Emergency Management, the Vermont Agency of Natural Resources, the Vermont Land Trust, the Vermont Housing and Conservation Board, and FEMA succeeded in acquiring the grant, a 90 percent federal share for the project. The remaining 10 percent local share was provided by the property owners from the equity when the land was purchased at the local tax assessment appraisal.

The total cost of the project was approximately \$150,000.

After all the buildings were cleared from the site, an observation deck for viewing wild birds was constructed on the area where the single-family home had stood. A Troy High School community service project provided workers to clean up litter from the area, plant maple trees along the river bank for erosion control, and prepare signage for a primitive campsite on the remaining land.

In addition, a community garden and leased organic vegetable fields are planned for the site. All of the elements of the project are flood-damage resistant. A custom, hand-painted sign was locally produced and erected on the site at the 2007 completion of the project.

Orleans County, Vermont



Quick Facts

Sector:

Public/Private Partnership

Cost:

\$150,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buyouts Bring Relief to Butler County

Butler County, KS – Historical Flooding, dating back as far as the 1930s, kept many homes in the City of Augusta and the town of Andover on the repetitive flooding list. Floods resulted from a major river near one community and a creek near the other.

On October 31, 1998, the Whitewater River and the Walnut River, located on both sides of Augusta, converged and flooded the community. The problem was amplified for the county by a watershed that consists of several smaller creeks, including the Four Mile Creek, which is south of the City of Andover.

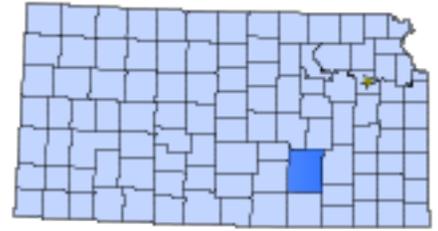
Using Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Grant Program (HMGP), the city of Augusta received \$1.8 million and used it to buy out 32 of 36 houses that flooded on Sunflower Street, leaving two houses on each side of the street. Other options available to homeowners included elevating the existing home, relocating the house to a higher elevation, or simply staying put and hoping for the best.

Under the terms of the HMGP, substantially damaged (more than 50 percent) structures may be purchased and demolished and the land returned to “open space” with no residential or commercial building allowed. The local jurisdiction agrees to own and maintain the land indefinitely. The process took three years to accomplish in Augusta; it was completed in 2001. The city’s current plans are to turn most of Sunflower Street into a cul-de-sac park area with scenic walking paths.

David Alfaro, director of economic development and former assistant Augusta city manager, estimated that the city saved \$180,000 in 2007 when the open area flooded again.

South of Andover in the Bridlewood Addition along Four Mile Creek, some houses had been sold more than six times with the buyers unaware that they were living in a floodplain. As Wichita became more commercialized, the flooding in Andover worsened.

The FEMA buyout in Andover involved 15 homes out of 20 affected by the disaster. The town received almost \$2.5 million from the federal government, and the open land in Andover has become a wildlife preserve, providing food for wild turkeys, deer, and, occasionally, pastureland for horses.



Butler County, Kansas



Quick Facts

Sector:

Public

Cost:

\$4,300,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Doing the Right Thing in Clifton, Texas

Bosque County, TX – Flood waters repeatedly inundated a small community causing extensive damage. In 1991, a record flood devastated the small town of Clifton, Texas. Some homes were totally destroyed and others required major renovation. The city sought measures to minimize the effects of future flooding by initiating buyouts as a mitigation practice.

In south central Bosque County, the town of Clifton is part of the hill country of Central Texas. With a population of approximately 3,500, the town supports light-industrial and agricultural-based employment. It is also a nesting place for the Bosque River.

“Flooding is no stranger to Clifton. I have seen that annually,” said Jimmy Burch, director of Public Works. “Recent flooding created an island around our old armory.” About the 2007 flood, he added, “Water was 12-18 inches deep. The little bridge was under water. Flood waters got up to the houses. If we had had 4-6 more inches we may have had a repeat of 1991.”

The Acquisition Project was initiated in August 1993 and completed in May 1995 at a cost of \$226,252. Clifton received an \$113,126 grant from the Federal Emergency Management Agency (FEMA) through its Hazard Mitigation Grant Program (HMGP). The funds were administered by the Governor’s Division of Emergency Management Agency. The project acquired 18 private real properties (structure and land) and 13 lots.

The HMGP paid 50 percent of the cost. On December 3, 1993, the President signed the Hazard Mitigation and Relocation Act of 1993, which significantly increased funding available for hazard mitigation grants under section 404 of the Stafford Act. Presently, HMGP pays 75 percent on approved projects that will prevent or reduce damage from storms and other natural hazards. These grants are made available for both public and private projects.

Property acquired with HMGP funds must be converted into open space and may not be built on in the future. The purpose is to remove people and their homes from harm’s way. Participation in acquisition projects is voluntary. Some choose not to participate because of sentimental attachment to their homes, while others welcome the opportunity.

The project created green space and a park. “We have tried to create parks in all of the acquired properties. The children are taking advantage of the green space for soccer games,” said Burch.



Bosque County, Texas



Quick Facts

- Year: **1991**
- Sector: **Public/Private Partnership**
- Cost: **\$226,252.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

City Uses HMGP to Restore Park

Montague, MI - Thanks to HMGP funds, the site of an old factory in a once neglected part of the small Michigan city of Montague was razed with intentions to create a park in its place. The structure, known as the Chimont building, was built in 1910 and later used for World War II related manufacturing activities.

The property is located next to the Buttermilk Creek just before the creek enters a 48-inch, 800-foot-long culvert that runs beneath the City of Montague's central business district and continues on to enter the White River. The land sits approximately 10 feet lower than the surrounding parcels and during extremely heavy rain, the creek overwhelms the culvert, flooding the site.

This old Chimont building had become undesirable for manufacturing use and in addition to becoming an eyesore in the city's central business district, it was also a safety concern. HMGP has allowed the City of Montague to raze the structure from the flood zone and restore the site to much desired open space, which the city will eventually restore to a public park.

While there had been various previous ideas to redevelop the structure/property, they were adversely affected by the potential for flooding.

In the end, thanks to the HMGP, the land was cleared and the plan to turn the area into a park can be realized. Infrastructure improvements include a small parking area, walking trails, and play ground equipment. The park will also be designed to accommodate a skating rink and sliding hill in the winter.

FEMA and the City of Montague were able to show that restoring the property to a park would be the best use for the land and would eliminate future property loss due to flooding. Thanks to cooperation and the HMGP, the project was completed in a timely, cost-efficient manner that has greatly benefited the city and its residents.



Muskegon County, Michigan



Quick Facts

Sector:

Public

Cost:

\$335,109.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Homes Saved From Flooding HMGP Used to Purchase Homes

Livingston County, MI - The six Mobile homes that sit on a small peninsula near the Hi-Land Lake and the Portage River were purchased through the Hazard Mitigation Program Grant (HMGP) in order to eliminate the emotional and financial hardships that would afflict the homes' residents following potential floods.

Granted \$524,475, the Livingston County Drain Commission acquired six residential structures in the Portage River floodplain. The mobile homes are located in Putnam Township just downstream of the Hi-Land Lake Outlet Dam, which is listed under the National Dam Inventory as a high-hazard dam. The area has a history of Dam flooding, including massive floods in 1982 and again in 2000.

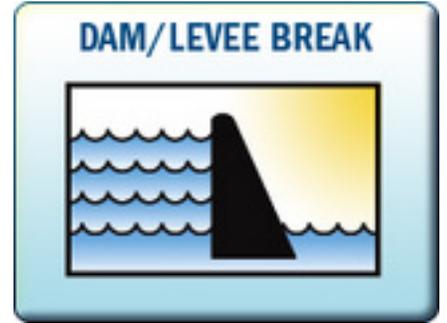
When the floods occurred, most of the damage to the homes would result due to sewer backups caused by short-term power failure at pumping stations and the capacity of the storm water collection system being exceeded. As a result, raw sewage would back up in the homes creating serious public health and safety concerns and causing property loss. Thanks to the HMGP and the purchase of the properties the mobile homes were removed, and the sewer system was secured to prevent future backups of sewage into neighboring homes and waterways.

The effectiveness of the project was realized just months after its completion when the Hi-Land Lake Outlet Dam flooded, and the already-purchased homes were severely damaged.

Thanks to the HMGP, State, County and FEMA cooperation, the potential hardships caused by this recent flood were avoided and will continue to be avoided in years to come.



Livingston County,
Michigan



Quick Facts

Sector:

Public/Private Partnership

Cost:

\$584,887.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Spicket River Floodplain Acquisition

Arlington, MA - The May 2006 flooding within the Arlington neighborhood of Lawrence impacted two dozen fewer families than in the past, according to Michael Sweeney, Planning Director for the city. This older urban area is located next to the Spicket River, a tributary of the Merrimack River, and close to Malden Mills of textile manufacturing fame. In the previous twenty years, there have been several evacuations due to flooding.

In 2003, the largest New England acquisition by FEMA was completed here with twenty-two owners and tenants relocated out of the river floodplain at a cost of \$1,411,430. A FEMA Hazard Mitigation Grant Program (HMGP) award paid for 75%, and a Department of Housing and Urban Development Community Development Block Grant covered the remaining 25% of costs. MEMA (Massachusetts Emergency Management Agency) and DCR (Department of Conservation and Recreation) provided technical assistance.

Two months after the heavy spring flooding in 2006, the grassy fields at the site appeared untouched. Red clover and milkweed bloomed profusely as butterflies fluttered about. Local children frequently explored the broad open space. This is an unusual landscape to find in a congested city of 10,000 people per square mile. Community leaders recognized the unique opportunity this land offered to local families.

Officials plan to make the property part of a larger greenway along the Spicket River. Additional city lots nearby are being held to use in a larger planned, passive recreation area. Now the neighborhood is looking at a future ball field and river walkway. Sweeney says, "None of this would have been possible without FEMA and the state."



Essex County,
Massachusetts



Quick Facts

- Year:
1996
- Sector:
Public
- Cost:
\$1,411,430.00 (Actual)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA

Flood-Prone Property Restored to Open Space

Roosevelt, AZ - In 1911 the Bureau of Reclamation constructed Theodore Roosevelt Lake, the first major structure constructed under the Federal Reclamation Act, formed by the construction of a masonry dam on the Salt River, submerging about 10 miles of the original river bed beneath the waters.

In the 1960's, many homes were constructed along the south shore of the lake and were repeatedly subject to damage from flash flooding. Roosevelt Estates is one of the communities in this area. This area, and these homes, had been damaged repetitively in flooding events because of their location near the confluence of the two major drainages.

During the 2003 monsoon storms, six to twelve inches of rain fell in a 12 hour period, flooding six homes near the corner of Ash Street and Palo Verde Drive, the geographic low point of the Roosevelt Estates where Campaign Creek and Pinto Creek converge. Three of the homes suffered substantial damage, making two of them uninhabitable. Altogether 20 homes lost all utilities for a day and phones were out for one week. The damage zone was eight miles square.

In the summer of 2002, the largest, most severe fire in Arizona history, the Rodeo-Chediski Fire, burned nearly a half-million acres of wilderness and triggered a Presidential Disaster Declaration for Arizona. Gila County applied for and received FEMA hazard mitigation grant funding from the State. Because the hazard mitigation funds were available for any priority risks, Gila County used the grant monies to purchase flood-damaged homes in Roosevelt Estates and to return the lots to a natural state.

Limited funds restricted the purchase to only three homes with the most damage—amounting to over 50% of their fair market value. The costs for purchasing the three homes totaled \$298,388.45, including appraisal and escrow fees. The savings from damages prevented to these three properties from floods occurring in 2005 and 2006 equaled more than \$500,000.

Gila County placed permanent deed restrictions on the properties, preventing any future development except for public facilities associated with open space or recreational use. In 2006, cottonwoods, eucalyptus trees and native chaparral grow among the rocks and the acquired properties show no sign of ever having been built upon.



Gila County, Arizona



Quick Facts

- Year: **2002**
- Sector: **Public**
- Cost: **\$298,388.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Property Acquisitions Reduce Flood Losses

Jednota Flats, PA - Jednota Flats in Lower Swatara Township floods almost every year. The area sits in a flood plain, and the homes endure up to ten feet of flood water during major rainstorms.

After flooding four times within twenty months during 2003 and 2004, the township's Emergency Management Agency (EMA) Coordinator, Alan Knoche, looked for a way to reduce flood losses in Jednota Flats.

With the help of the Pennsylvania Emergency Management Agency (PEMA), the community applied for the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) for an acquisitions project. Under this grant program, FEMA provides funding to communities enabling them to purchase homes suffering repetitive flood damage. These homes are then purchased from the owner by the community at fair market value and converted into open space. It is also a cost-effective program saving money on future flood insurance claims, cleanup costs, and allows the municipality to conserve valuable resources.

"FEMA and PEMA officials have been cooperative, helpful and responsive throughout the entire buyout process," Knoche continued, "They are always available to answer any questions I have."

After approving PEMA's submission of Lower Swatara's application, FEMA provided \$186,166 to buy out the two homes most vulnerable to flooding. "Every time we would have a rain event, these homes would flood, sometimes above the first floor," Knoche explained.

In mid-June, the township closed on the two properties. Just days later, the homes flooded again. This time, however, the grateful families had already moved to new higher, drier homes.

"Not only have we saved families, we no longer have to endanger others, like our firefighters, who rescue those homeowners that are flooded, this program saves lives" Knoche stated.

Their flood damaged homes are scheduled for demolition in late fall or early winter, and the town is planning to allow the neighboring wetlands to expand into the newly acquired open space.



Dauphin County,
Pennsylvania



Quick Facts

Year:

2003

Sector:

Public

Cost:

\$186,166.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Sarasota County Drainage Project Protects Celery Fields

Sarasota, FL – Farmers designed the fields to retain water and nourish the celery crops, but development to the south continually flooded as new building subdivisions increased runoff and decreased the ability of the ground to absorb water. The slight southern slope of the land and the loss of natural turf, due to development, caused flooding when heavy rains fell.

The situation became critical in 1992 when 22 inches of rain fell over three days, and the resulting runoff inundated more than 200 homes in the former celery fields.

Engineers analyzed the area’s flooding patterns and north-south water flows, and then developed a plan to control the water through a series of canals, ponds and mechanical flow devices. They created computer simulations with various flooding conditions and, upon review of the data, the design appeared to stop the damage without flooding other areas.

The county purchased the remaining former celery fields – more than 300 acres of property cut with ditches and framed by a series of canals. The design incorporated the canal infrastructure and added diversion gates, outflow pipes and controls.

After three years of construction on the first two phases of the project, the test came in November and December 1997 when two 100-year events (a level of flooding that has a 1% chance of occurring in any given year) deluged the flood-prone area. The design worked. Nearby homes were spared from flooding.

The county installed automated monitoring stations that allowed staff to watch the water levels remotely. Because of this remote operation, county officials can track the amount of water in the canals, measure accrued rainfall, graph results and make appropriate decisions about holding and releasing runoff from the facility and control flow into the system.

To pay for the project, Sarasota County put into place a funding plan often used by cities: the county’s water division localized assessments. This way only those residents who benefited from the project paid for it, instead of taxing all county residents.

The celery fields project contained a hidden bonus for the county. The grass marsh created on the site lured many birds to nest in its high grasses and weeds. People drove for miles to watch the migrations.

A partnership between the county and the Audubon Society developed to enhance the natural bird habitat. Plans for a third phase will increase walking trails, picnic areas, park amenities and natural landscaping. Visitors will find signs that identify birds and plantings amid the pines, salt myrtles, and wax myrtles.



Sarasota County,
Florida



Quick Facts

- Sector:
Private
- Cost:
\$26,795,388.00 (Estimated)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Local Sources



FEMA

Buyouts Bring Relief to a Pennsylvania Community

Lower Moreland Township, PA – Chestnut Street homes located near Pennypack Creek, dating to the early 1900s, and the nearby Garden Condos built in the 1960s shared a history of significant flooding.

Severe flooding in September 1999 devastated the community, leaving residents displaced for two years while repairs were made. “Then, just after finally moving back in, Tropical Storm Allison flooded [residents] again in 2001,” said Lower Moreland Township Manager, Alison Rudolf.

Southeastern Pennsylvania received eight to ten inches of rain from Allison. Residents were weary and concerned about their future. Then a search for a permanent solution to the repetitive flooding began.

Township officials decided that residents could not continue to live in the floodplain. They contacted the Commonwealth and completed an application to participate in FEMA’s Hazard Mitigation Grant Program (HMGP). Following a major disaster declaration, the HMGP funds up to 75 percent of the eligible costs of a project that will reduce or eliminate damages from future natural hazard events.

A buyout is a voluntary partnership between willing homeowners and local communities with the goal of permanently removing people and structures from the floodplain. “Property acquisition, or buyouts, is the only flood loss prevention activity that is 100% effective, 100% of the time, and it lasts forever. Additionally, buyouts are environmentally friendly because they result in returning the floodplain to its natural function,” explained State Hazard Mitigation Officer, Ron Killins.

Thanks to the HMGP grant, township officials were able to offer Chestnut Street homeowners fair market value for their properties; most of the homeowners accepted the offer.

The Chestnut Street acquisition project was completed under budget. The Township then requested and received additional funds to include the Garden Condos in the buyout. The project was successfully completed in 2005, at a cost totaling \$2,636,060. A total of 35 structures were acquired in the project.

After the buyout and demolition, a new water retention area was built where the residences once stood. “It held an unbelievable amount of water”, Ms. Rudolf said. “This project saved our senior facility, shopping center, businesses, and homes. Everyone was dry! All of these would have been under water [during another major flood event]. This project made all the difference for our community.”

Photo: Lower Moreland Township Manager Alison Rudolf at the new retention area protecting structures outside the floodplain. The retention area is where repetitively flooded residences once stood.



Montgomery County, Pennsylvania



Quick Facts

- Year: **1999**
- Sector: **Public**
- Cost: **\$2,636,060.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

HMGP Buy-Outs Benefit Two Pennsylvania Communities

Luzerne County, PA – Margie Thomas has lived and worked in the Wyoming Valley area all her life. There, she has witnessed many disasters and the hardships they bring to the affected communities.

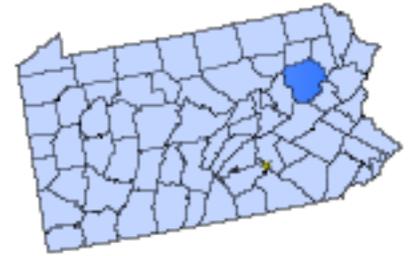
As a longtime employee of the Luzerne County Redevelopment Authority, Ms. Thomas has first hand knowledge about disasters and disaster recovery. She has witnessed members of the community lose their homes and property, and struggle to get back on their feet.

Plains and Hunlock Townships are located in a low-lying area close to the Susquehanna River. Families there have been residents for generations, or “old stock” as Ms. Thomas affectionately calls them. “Structures consist of mostly single family, moderate income residences,” she said. The river often floods during storms, subjecting residents to personal property loss and a time consuming and extensive cleanup.

Flooding in 1996 mobilized the townships to participate in FEMA’s Hazard Mitigation Grant Program (HMGP). Following a major disaster declaration, the HMGP funds up to 75 percent of the eligible costs of a project that will reduce or eliminate damages from future natural hazard events. Administered and funded by the Commonwealth and FEMA, and with the willing participation of homeowners, a buy-out project was undertaken in 1998. The cost of the Plains Township project was \$906,823, and the cost of the Hunlock Township project \$451,645. The structures located in the floodplain were bought and demolished, leaving empty open spaces in perpetuity. There are plans to turn one area into a recreational field and the other into a riverfront picnic area.

“There is now a general feeling of gratefulness, where before there was only despair,” noted Ms. Thomas. “Plains and Hunlock Township residents have benefited greatly from the buyout... [They now have] peace of mind... Some residents – older ones especially – find it hard to move away from their homes. But now, after making that hard decision, they lead happier, safer lives,” she added.

The HMGP provides long-term solutions to hazards such as flooding. An acquisition removes people and property from harm’s way by either demolishing or relocating flood-prone homes, and returns the area to open space, thereby restoring the natural function of the floodplain. The local government becomes the new owner of the acquired land, and only uses compatible with open space are permitted, such as parks, basketball courts, or walking paths. “The government pays fair market value during purchase of the properties,” Ms. Thomas explained. “If anyone [who as experienced flooding] has the opportunity to participate in a buy out, I strongly recommend they do so,” she asserted.



Luzerne County, Pennsylvania



Quick Facts

- Year: **1996**
- Sector: **Public**
- Cost: **\$1,358,468.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Glenville Buy-Outs: Back to Nature

Glenville, DE - When Bill Marino and his neighbors saw the flood waters rising around their neighborhood in September 2003, they knew their properties were in serious danger. "I saw the water covering the ground around the house so I headed for the car, but by the time I got outside the flood water had risen waist deep. This flood brought to light a major public health and safety issue for the entire neighborhood because there was no time to escape," Mr. Marino said.

Mr. Marino, long-time President of the Glenville/Stanton Crest Civic Association, and Tom Gordon, former county executive, unified the neighborhood and endeavored to have the State of Delaware purchase the flood-damaged homes. Mitigation studies conducted by the State concluded that property acquisition and relocation was a sound decision to address the flooding problem in Glenville.

Through the collaborative efforts of the State, New Castle County, the Delaware Department of Transportation (DelDOT) and FEMA, funds were allocated for the buyout project. In January 2004, The Glenville Reinvestment Project began the acquisition of 172 homes located within the 100-year flood plain. A local contracting firm coordinated the demolition and debris removal. This project was unique in the community because of the large number of homes that were purchased and because of DelDOT's proactive mitigation plan to use the land for a wetland habitat and future flood storage area.

The Glenville area has a long history of flooding; a total of 14 flood events are on record dating back to 1937. The 2003 flood, unlike previous floods, came without warning and flooded the entire neighborhood within fifteen minutes. Fortunately, the event occurred in the morning when most of the residents were at work and children were at school. Had the flood occurred at night, the threat to human safety would have been more severe. However, there were still many residents, including several elderly and handicapped persons in wheelchairs, whose lives were in serious jeopardy and who needed help immediately. The residents stranded in their homes when the flood occurred were thankful that a rescue team was in the area and able to assist them.

Recalling the 2003 flood, Mr. Marino said: "After this flood, everyone knew time was of the essence to relocate. The residents of Glenville were very pleased with the help they received and with how fast the purchase transactions were completed. Things get done when people work together." Many of the residents whose homes flooded relocated in less than nine months. The community now has one of the nicest wetland reserves in the state and a new flood storage area that will help reduce future flooding. The relocated families are at ease in their new homes, and are saving money on flood insurance premiums. As wildlife roam the open fields of the old neighborhood, the former residents can rest at ease when rain is forecasted.



New Castle County,
Delaware



Quick Facts

- Year: **1993**
- Sector: **Public/Private Partnership**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Community Assistance Program (CAP)**



FEMA

Mitigation Efforts Prove Successful In Flood Fight Along the Red River

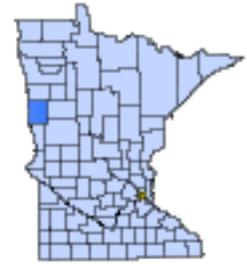
Moorhead, MN – Moorhead has seen its share of flooding over the past two decades. In 1994, 1997, and 2002, the City of Moorhead took part in FEMA's Hazard Mitigation Grant Program (HMGP) to mitigate flooding and reduce future flood losses. A total of eight repetitive loss properties in 1994, sixteen homes damaged in the 1997 flood, and two additional repetitive loss homes in 2002 have been acquired through the HMGP.

When Mary and Bill Flickinger bought their home in Moorhead in 1983, it was a great location to raise children. Their backyard abutted the Red River and they felt like they were living in the country yet had the conveniences of the nearby city. Unfortunately, the Flickingers' close proximity to the river became hazardous. From 1983 to 1997, the couple laid sandbags to save their home on three occasions. In the flood of April 1997 (the second highest on record), a sandbag dike rose six feet high just outside the door to the Flickingers' house. From the walkout-level family room, the river rushed by at eye level. With the help of family, friends, and their church, the Flickingers were able to keep water out of the home.

Two months later, more heavy rains fell. The Flickingers' home had made it through the April flood only to have water seep through the foundation in June. Mr. Flickinger asked a friend who was an engineer to inspect house; they discovered that the foundation had moved. The saturated soils from the April flood had caused the house to shift and become structurally unsound. The heavy rain in June then revealed this problem to the homeowners. In response, Mr. Flickinger consulted with City of Moorhead officials and their house was included in a city acquisition project. The City was interested in the property because it abutted the water intake facility for the City's drinking water system. The home was purchased and demolished with the help of FEMA's HMGP acquisition program and the Flickinger family moved to an area known as the Meadows Subdivision.

In 2006, the fifth highest flood on record hit the Moorhead area. This time damage from floodwaters along the Red River was minimal thanks to the buyouts and a sandbag dike. The Flickingers old riverfront home would have been under water during the event.

The City of Moorhead has made many improvements using a variety of Federal and state mitigation funds. For example, dikes have been constructed, storm sewer control gates have been installed, and flood models have been produced. The City also installed sanitary sewer isolation valves on homes remaining in the floodplain and a concrete liner on a ditch to safely move overland floodwater through the city. Sand bagging is necessary in some areas when the river level reaches 35 feet. In 2006, approximately 100 property owners constructed dikes to protect their homes to the 38 foot flood stage.



Clay County,
Minnesota



Quick Facts

- Year: **1997**
- Sector: **Public/Private Partnership**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Napa River Flood Protection Project - A "Living" River Concept

Napa, CA - In the flood-prone valley of the Napa River lies the world-class traveler's destination of Napa, California. Over the span of 36 years (1961-1997), a total of 19 floods caused more than \$542 million in residential property damage alone. That total does not include economic losses in the tourism industry, environmental damage, or the loss of human lives.

During a 1986 flood, 20 inches of rain fell in a 48-hour period, resulting in 3 deaths, the destruction of 250 homes, damage to 2,500 homes, and the evacuation of 5,000 residents. Flood events in March 1995 and January 1997 were similarly destructive. The City of Napa subsequently embarked on an ambitious effort to mitigate flood losses in the community.

The Napa River - Napa Creek Flood Protection Project was voted into reality by the passage of Napa County Measure A in March 1998. This half-cent local sales tax levy passed by the citizens of Napa County provided a funding mechanism for the local share of the project cost and helped solidify the partnership between the Napa County Flood Control and Water Conservation District (NCFCWCD) and the USACE.

Measure A funds flood protection, drainage improvements, dam safety, and watershed management projects for each community in Napa County and in the unincorporated area of the county. The project is still on-going in 2006 and components include the following: the acquisition and removal of more than 50 mobile homes, 16 residences, and 28 commercial buildings from flood-prone areas; the creation of over 400 acres of emergent marsh and 150 acres of seasonal wetlands; the removal, reconstruction, and elevation of several bridges; the elevation of railroad tracks; home and utilities elevations; the creation of structural flood control elements such as widened stream beds, flood walls, levees, and culverts; and the construction of three detention basins with accompanying pump stations. According to NCFCWCD, "When all these project components are in place, the City of Napa will have a system to keep homes and businesses dry in the future."

December 2005 was the first test of Napa County's new flood mitigation efforts when nearly 10 inches fell in a 24-hour period. Local officials were ready for the flood and had already placed sandbags and warned residents. Within four days of the flood the City had placed debris containers around town which greatly facilitated cleanup and repair. At the time of the flood, officials estimated that the project was only 40% completed. Nevertheless, significant economic losses were avoided, and there is a sense of confidence in the city's economic vitality. In addition to mitigating flood losses, the community has placed a revitalized, healthy river as the centerpiece of Napa. Many people now take advantage of the resources the river has to offer, including fishing, boating, walking along river trails, bird watching, and scenic dining.



Napa County, California



Quick Facts

- Year: **1995**
- Sector: **Public/Private Partnership**
- Cost: **\$18,940,392.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Flood Mitigation Assistance (FMA)**



FEMA

Home Buy-Outs Create Green Space on Dauphin Island

Dauphin Island, AL – Dauphin Island has created a more hurricane-resistant community. Property acquisitions have taken place as mitigation measures to protect renters, owners, and businesses from frequent flooding caused by hurricanes and storms. Recreational areas, green spaces, and bird habitats occupy land where repetitive loss properties once stood.

Standing guard between Mobile Bay and the vast Gulf of Mexico is Dauphin Island, a true barrier island with dunes, maritime forests, salt marshes, tidal flats, and two freshwater lakes. The island is 14 miles long and 1 ¾ miles wide at the widest point. Less than half of the island is inhabited; 8 miles on the western side are undeveloped. Dauphin Island is vital for providing protection to the mainland from severe weather events. Island officials are very experienced in planning and preparing for hurricanes and floods.

Since Hurricane Katrina (2005), Dauphin Island has begun requiring an additional two feet of freeboard above the Base Flood Elevation for all new construction to help reduce the risk of future flood damages to properties.

Plagued by frequent flooding from heavy rains and hurricanes, Dauphin Island officials were motivated to acquire repetitive loss properties from property owners. The acquisition was funded by FEMA’s Hazard Mitigation Grant Program (HMGP) and administered by the Alabama Emergency Management Agency.

When homes and businesses experience heavy flooding (especially multiple flood events), FEMA’s buyout program is a cost-effective and long-term solution for community floodplain managers and owners of flood-damaged property. This mitigation activity restores the natural function of the floodplain, eliminates the risk of future damages to those structures removed from the floodplain, and reduces the potential for future property losses by limiting the kinds of future improvements permissible on the land acquired. The resulting open space can be used for flood resistant projects such as parks, picnic areas, walking paths, basketball courts, and wildlife refuges.

A total of three homes were included in an acquisition project that was completed after Hurricane Ivan (2004). “There is no question about what would have happened to these homes during Katrina if they had not been [removed from the floodplain]. They would have flooded,” said Mayor Jeff Collier.

One acquired property bordering Salt Creek is now a popular park located near an elementary school. The cost of the HMGP acquisition totaled \$218,140. Visitors enjoy modern playground equipment, picnic tables, benches, and shade trees. Pryor Park, a property acquired through the HMGP for a total of \$204,262, is located in a quiet residential neighborhood. It is enclosed by a picket fence and has benches for relaxing. The third property was acquired for \$101,355, and is now green space for birds to enjoy.

“Dauphin Island is unique because of its location, tourists, secondary homeowners, and specialty shops. Because of its makeup, the effects are far reaching when severe damage occurs from hurricanes and frequent flooding,” said Mayor Collier.



Mobile County,
Alabama



Quick Facts

Sector:

Public

Cost:

\$523,757.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA



Devastation to Sustainability: Flooded Property Returned to Open Space

Lockwood, NV – Life on the Truckee River can be dangerous during winter rainstorms. Warm currents from the South Pacific Ocean bring rain on top of the winter snow, which can cause severe flooding.

This weather pattern is known as the “Pineapple Express.” It caused the river to overflow its banks into the Truckee River Mobile Home Park in Lockwood on December 31, 1996. The same weather pattern occurred on December 31, 2005, but this time the Washoe County government, residents of the mobile home park, and several neighboring properties were prepared. The community had participated in a \$3.6 million project that successfully mitigated the repetitive damage caused by the river’s flooding.

The Washoe County Public Works Department was aware of the flooding problems in Lockwood. The area had flooded five times in 15 years. The mobile homes in the park and 12 nearby single family homes were substantially damaged.

Washoe County applied to the State of Nevada Department of Emergency Management for funding under FEMA’s Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) program to buy out the properties located in the floodway.

David T. Price of the Washoe County Department of Public Works was the engineer in charge of the project. He recalled how devastated the area was. “We worked very hard on that project - it was a mess,” he said. Mr. Price was proud of the cooperative effort between the Washoe County Department of Public Works and the Nevada Department of Transportation (NDOT). NDOT contributed 44 mobile homes to the project. The homes had been part of a purchase of land in Carson City for a new freeway. “I enjoyed working with [FEMA] and it was a pleasure to see the joy of the people we helped relocate,” Mr. Price reminisced.

In 1996, a “Pineapple Express” weather pattern increased the river flow to just over 18,000 cubic feet per second in downtown Reno, and there was nothing anyone could do but wait helplessly as properties were damaged. When the sanitation system at the mobile home park failed, the park’s operation permit was placed under suspension by the Washoe County District Health Department. The residents of the mobile home park and the 12 neighboring houses were homeless and had lost all their possessions.

By the end of the acquisition project, all of the families devastated by the Truckee River’s floodwaters were living in new locations. Families in the mobile home park received relocation cost assistance, which enabled them to move to another park of their choice. Some residents purchased mobile homes from NDOT. On New Year’s Eve 2005, the homeowners in Lockwood were safe in their new homes.

The Washoe County Parks Department and the State of Nevada Wildlife Conservancy are working on an open space project addressing flood control, wildlife, and community use. The land is now open space and wetlands that drain water during high water events, and is deed-restricted to that use in perpetuity under the federal grants.

Multiple Counties,
Nevada



Quick Facts

Year: **1997**
Sector: **Public**
Cost: **\$3,600,000.00 (Actual)**
Primary Activity/Project: **Acquisition/Buyouts**
Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Hopkinsville Acquisitions: Protecting Residents from Floods

Hopkinsville, KY – Nestled at the base of the Pennyrile Region in southwestern Kentucky, Hopkinsville community officials and residents know first-hand the importance of flood mitigation. Flooding from the Little River has caused 18 major flood events in Christian County in the last 100 years. In March 1997, after major flooding caused over \$75 million in damages and devastated 450 homes, officials in “Hop-Town” (as locals refer to their community) knew it was time to pursue ways to lessen the impact flooding was repeatedly having on their town.

Successful and effective mitigation begins at the local level. It requires the desire of local officials to implement mitigation measures for their communities in order to minimize damage from future hazard events.

Beginning in September 1997, the Town participated in a FEMA Hazard Mitigation Grant Program (HMGP) project to acquire properties in the Cherokee Park subdivision, a residential development located near the Little River and at great risk of repetitive flooding. The project acquired 38 properties at a cost of approximately \$1.11 million. Subsequent flood mitigation projects continued to concentrate efforts on Cherokee Park.

As of spring 2006, Hopkinsville has been awarded two additional HMGP grants and three Flood Mitigation Assistance (FMA) program grants through the Commonwealth of Kentucky. Additionally, the Town has used money from a Housing and Urban Development grant to acquire and demolish two flood-prone homes, as well as \$30,000 from its own budget to acquire a home in Cherokee Park. So far, Hopkinsville has acquired and demolished 66 homes in the subdivision. The Town’s ambitious plans to mitigate flooding do not stop with these home acquisitions.

As these flood-prone homes have been demolished and the property returned to green space in perpetuity, Hopkinsville has been turning the land into a recreational vehicle park to connect with the adjacent Trail of Tears Park.

The Hopkinsville acquisition projects are an excellent example of the goal of mitigation grant programs, whereby a local community, assisted by state and federal agencies, works to reduce or eliminate risk from future hazard events. According to outgoing City Manager Mark Withers, “To achieve success, we must work as hard when it’s dry as we do when it rains.”



Christian County,
Kentucky



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$2,035,431.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

The Falmouth Flood of 1997: Acquisitions Mitigate Future Losses

Falmouth, KY – “There is no Falmouth,” lamented Kentucky State Police Trooper Jan Wuchner, following a visit via helicopter to the flood-ravaged town on March 2, 1997. The small town situated at the confluence of the Licking River and its South Fork in Pendleton County had been inundated with floodwaters the previous day. “We lost it all,” said Mike Fields, who lost two properties to the flood, including his grandmother’s house.

On the night of March 1, 1997, heavy rains caused the Licking River to rise to over 24 feet above its flood stage, sending a wall of water into the town. The flood, which reached 50 feet at its height, was the worst in the town’s history, breaking the previous record of 47 feet set in 1964. Five people were killed, and nearly one thousand people lost their homes and had to be evacuated to nearby churches and Pendleton County High School. The damage was estimated at over \$50 million.

By April, the City Council had agreed to apply for federal assistance to acquire and demolish some of the homes that had been badly damaged or destroyed by the flood. The City received a \$3 million grant through FEMA’s Hazard Mitigation Grant Program (HMGP) to acquire 83 properties. City officials were also able to obtain a Community Development Block Grant to cover the 13 percent local share required for participation in the HMGP. Participants in the acquisition project were given fair market pre-disaster value for their homes. The houses were demolished, and the land will remain open space in perpetuity in order to mitigate future flood losses.

Mr. Fields and his wife, Pam, were one of the families who participated in the buyout program. “This will help a lot,” Mrs. Fields said. “We were making payments on houses that weren’t there.” They planned to use the money they received from the HMGP to rebuild somewhere else. “The only thing to do is revamp and move to another place,” Mr. Fields said.

Ann Howard also participated in the buyout. Her house, which she shared with her mother, Florence McMillian, and granddaughter, Cindy Howard, was completely washed away by the flood. “I lost all of my things and stuff from my ancestors,” said Ms. McMillian. “But I want to go somewhere now where I have peace of mind.” Thanks to the buyout program, the women were able to relocate outside of the floodplain.



Pendleton County,
Kentucky



Quick Facts

- Year: **1997**
- Sector: **Public**
- Cost: **\$3,070,675.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Acquisition & Relocation Project Protects Riverside Community

Fort Fairfield, ME – The spring of 2005 witnessed a massive ice jam and flooding on the Aroostook River in northern Maine. This time, the residents of Fort Fairfield remained high and dry; in the past, they had to flee their homes and wait anxiously for the water to recede. The business district also escaped the recent flood.

“This event (2005) was of longer duration than any in recorded history,” said Tony Levesque, Fort Fairfield’s community development director and code enforcement officer. “We closed some roads and the bridge several times and water in some driveways limited the access to the homes...but there was no property damage to homes or the business district,” Levesque noted.

The community withstood the event thanks to extensive flood mitigation measures adopted by the Town of Fairfield over the past 10 years. The town government led the initiative, with the help of the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers (USACE), and several local, non-profit, state, and federal agencies.

Funding came from a variety of sources including the FEMA Hazard Mitigation Grant Program (HMGP), Community Development Block Grants from the U.S. Department of Housing and Urban Development, state and local sources, and a grant from the Aroostook Band of the Micmac Tribe.

A flood warning system enhanced the town’s preparedness. It was developed in cooperation with the National Weather Service and local power companies. The system alerted local officials to dangerous situations within minutes and warned the community quickly.

The Aroostook River is near the Canadian border in northern Maine. In a typical winter, the river is blanketed with snow and can be frozen two feet thick or more for months. Periodically, the region experiences a warm spell. When the temperature rises above freezing, the ice begins to break up and jams form. Ice jams, rain, and melting ice and snow create a serious flood hazard. In the past, homes and businesses flooded, residents fled their homes, and there were daring rescues, including one in which people were evacuated in the bucket of a front-end loader. This destructive jam-and-flood scenario occurred six times from 1988 to 1994.

The Aroostook River, clogged by an ice jam and unable to accommodate runoff from unseasonably warm weather and heavy rain, overflowed its banks in 1993. A federal disaster declaration resulted, prompting local officials to seek a solution to stop this destructive cycle. In 1994, an ice jam and flooding event again resulted in a federal disaster declaration. The town responded by developing a two-pronged attack on the problem. First, local officials resolved to develop a project aimed at acquiring or relocating 46 homes near the river that were continually at risk of flooding. The project was awarded funding under the HMGP. The second solution was to build a dike to protect vulnerable sections of the business district.



Aroostook County,
Maine



Quick Facts

- Year: **1994**
- Sector: **Public**
- Cost: **Amount Not Available**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Medical Clinic Moved From Danger Annual Floods Do Not Reach New Clinic

Drayton, ND - North Dakota's historic 1997 Red River Valley flood nearly spelled doom for one small-town medical clinic.

Inside the building, flood waters rose to six inches. A thick layer of mud covered the floor and mold had begun to grow. Despite efforts to clean and disinfect the building, the medical staff thought the health risk for patients was too high to treat them inside the building. Instead, the staff treated patients in their cars.

Floods are a regular occurrence in Drayton, a small city with a population of 900. It faces a flood threat practically every year.

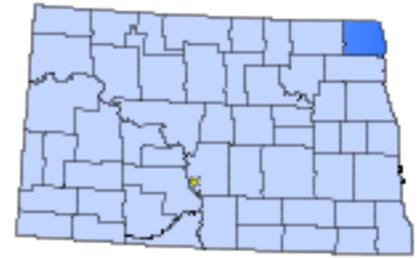
The clinic building, which also housed a local dentist, was at risk to flood again and again, even though it sat 35 feet above the normal river level. The river last reached the clinic's crawl space in the spring of 1999. It was the tenth recorded flood since 1980 alone.

To make matters worse, the riverbank had become increasingly unstable due to erosion from repetitive flooding. Because of this, there was not enough stability behind the clinic to build an emergency dike. Some thought it was only a matter of time before the weight of the building would cause the ground to collapse, sending the clinic tumbling toward the river.

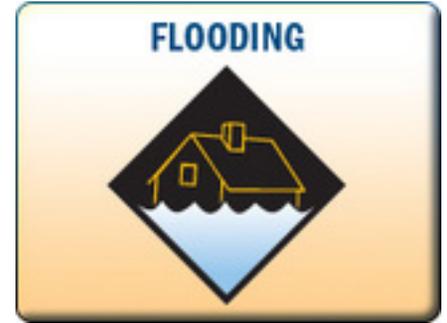
Residents and city officials felt something had to be done. The city's hospital closed in 1975 and the clinic was the only local medical facility available to residents. They knew they needed money to pay for a new building that was better protected from flooding. Through a public-private partnership, they received everything they asked for.

A financial package that included a grant from the U.S. Department of Housing and Urban Development Administration, proceeds from the National Flood Insurance Program and donations from local organizations led to the purchase and remodeling of another building on the edge of town.

Since July 1999, the clinic has been operating from a larger, newly remodeled facility about a half-mile from the structure's original location on Main Street. Due to the recent disaster-resistant measures, the chances of the facility being damaged again are greatly reduced. It is also likely the clinic can remain open for patient care, even if flooding threatens other areas of the city.



**Pembina County,
North Dakota**



Quick Facts

Sector:

Public/Private Partnership

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

National Flood Insurance Program (NFIP)



FEMA

Changing Course Buyouts in East St. Peter

St. Peter, MN - The Minnesota River covered Highway 99 in Le Sueur County in the spring of 2001. The high water caused the closing of the busy roadway that crosses the river and made the bridge from the unincorporated community of East St. Peter to the city of St. Peter impassable. The rush of waters was a repeat of the flooding in 1997, and before that in 1993.

But for the last two flooding events, damage to residences and businesses along Highway 99 in the East St. Peter area simply did not occur. A buyout program, initiated after devastating flood damage in 1993, helped 16 business owners and two homeowners move out of the floodplain by the time the 1997 flood hit.

"Had the houses and businesses still been located in East St. Peter, they would have had two to six feet of water in them," said Darrell Pettis, Le Sueur County Engineer, describing the 2001 flood.

After floodwaters devastated the area in the 1960s, the Army Corps of Engineers constructed a dike as a temporary solution in 1969. It served its purpose prior to the 1990s, holding high waters back from flooding homes and businesses. Since it was built as a temporary protective measure, no funding was in place for maintenance or upgrading. The community needed a permanent solution.

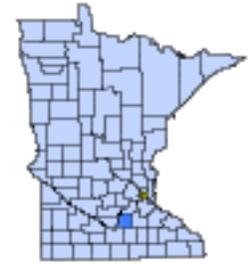
Le Sueur County stepped up to be the local-share partner for the Hazard Mitigation Grant Program (HMGP) acquisition project, administered through the Division of Emergency Management (DEM) after the presidentially-declared disaster of 1993. The Minnesota Department of Trade and Economic Development (DTED) and the Department of Natural Resources (DNR) helped Le Sueur County with the local share match for the buyout program. DTED also added grant money for conducting environmental studies and cleanup.

Repetitive flooding endangers communities at many levels: loss of life, reduction of property values, significant losses in revenue and stress-related illnesses. These severe consequences push citizens and local officials to action and force difficult decision-making.

The concept of FEMA's acquisition program is simple. When homes and businesses have been involved in heavy flooding (especially multiple flooding events), and local officials and owners of these properties are looking for a solution, FEMA's buyout program can completely eliminate future flooding problems by removal of structures.

The buyout process can take years to complete. In the E. St. Peter project, a number of businesses were involved and various funding agencies participated. Public meetings were held, and subsequently, appraisals and negotiations were conducted on all the properties. Owners were offered a pre-flood fair market price and additional monies for relocation expenses. Environmental testing took place as required by federal law in the purchase of commercial property. By the next major flood, the buyouts were complete.

The flood of 1993 caused business losses of hundreds of thousands of dollars from damage and lost revenue. Even at that, the decision to "get out" was an agonizing one. For some, it was saying good-bye to the livelihoods they had known for 20-30 years and a lifetime of customer-based relationships.



Le Sueur County,
Minnesota



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Ring Dikes and Buyouts Norman County, Minnesota

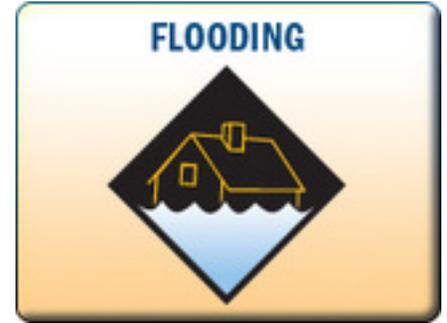


Norman County, MN - The repetitive flooding of the Red River Valley has caused Norman County residents and local government officials to place a high priority on flood protection. Partnerships were formed to provide solutions to keep farmers in business and communities viable. The Wild Rice Watershed District (WRWD) has been working with rural residents, state agencies and FEMA on implementing a mitigation strategy of acquisition and ring dike construction.

Norman County,
Minnesota

Victims of flooding who were seeking solutions had to choose the best option for their circumstances: Sell the farmstead and relocate or build a ring dike encircling the house and farm buildings.

"Farming is a unique situation. We have lots of capitol invested in our buildings and place of business. It's hard to up and move to a different location in the case of a buyout. There's a lot to consider," said Gordon Ramstad of Ada. A ring dike encircles Ramstad's and his brother's homes, and the grain and machine storage, workshops and office that make up their farmstead.



Since 1997, 32 farm homes have been acquired and 36 ring dikes have been built around farmsteads in Norman County. Ring dike costs average \$30,000 for construction. Project costs are shared by the landowner, local government and the State of Minnesota. The state legislature has appropriated funding for the ring dike program since 1997. For each ring dike the state provides a cost share of 50%, with the Red River Watershed Management Board (a joint powers board of watershed districts) contributing 25% of the cost and the remaining 25% being evenly split between the landowner and the local watershed district.



"The ring dikes have reduced flooding damages substantially and brought a lot of security to rural residents," said Jerry Bennett, WRWD Administrator.

"When the rain first tested us in 2000, it was such a nice, secure feeling knowing the dike was there," said Gordon Ramstad. "In 2000 and 2001, I'm sure we would have had water in our yard if it hadn't been for the dike."



Dwight Heitman and his family also can sleep easier come the spring thaw. Heitman recalls spending wet spring nights patrolling his property for possible flooding, ready to call in help if rising floodwaters necessitated sandbagging around the house. With the help of the mitigation program, Heitman now has a ring dike fully two feet over the high water mark of 1997.

"It really puts your mind at ease," said Heitman. "In 2001 a lot of farms west of here had more floodwater than in 1997 and I still had three feet to go on my ring dike."

After all is said and done, the ring dikes have offered a feeling of security to these farmers and their families.

Quick Facts

- Sector:
Public/Private Partnership
- Cost:
Amount Not Available
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Mitigation Planning



FEMA

Minnesota City Battles Flooding Residents Retreat from Cedar River

Austin, MN - In the spring of 2000, floodwaters in Austin, Minnesota, crested at 23.4 feet, the highest on record. But far fewer homes received flood damage than in the multiple flood events of the last 30 years. A first-of-its-kind acquisition program was conducted after two major floods in 1978. With additional buyouts occurring after succeeding floods, a total of 163 structures were eventually removed from the flood plain - before the flood of 2000.

In our history of settling this vast continent of North America, rivers continually provided a stopping-off point. The Cedar River meanders across the flat lands of the Minnesota prairie and is joined by Turtle Creek and Dobbins Creek where the City of Austin now lies. Austin grew up around the river, as businesses and neighborhoods developed and people harnessed the river's flow to power the flour and saw mills.

After the second devastating flood hit within 10 days in July 1978, residents and City officials in Austin knew something had to be done.

Concerned citizens formed the Floodway Action Citizens Task Source (FACTS) to investigate ways to solve the flooding problem. The group, with a membership that reached 450, met and dialogued with the Austin City Council, Turtle Creek Watershed Board, the Department of Natural Resources, the Governor's office and state and local agencies to gather as much information as possible.

The City of Austin looked to the U.S. Army Corps of Engineers to develop a solution for the problem of repetitive flooding. The USACE studied the possibilities of dredging the Cedar River or engineering a structural flood control project, but concluded that the various structural and non-structural solutions were not cost effective.

Residents and civic leaders didn't give up. The City's Housing and Redevelopment Authority (HRA) requested and obtained a Community Development Block Grant from the U.S. Department of Housing and Urban Development.

"We had to come up with creative ways to solve the problem," said Kermit Mahan, executive director of HRA. "The key is to be aggressive and creative in putting together the funding."

But first the City and agencies contributing funds for the buyout program had to be assured no more homes would be constructed in the way of floodwaters. Flooding again damaged homes in 1983 and in 1993 when 450 homes were affected. Additional buyouts were conducted on a voluntary basis.

Because of the flood protection work of the city, flood insurance policyholders have lower premiums. Community participation is voluntary. The CRS schedule identified 18 creditable activities, organized under four categories The City of Austin has received credit for 15 out of 18 activities. This has earned the City of Austin a Class 5 rating and a reduction of 25% in flood insurance premiums for policyholders.

Today, Alice Snater still worries about friends who live a few blocks from where her home previously resided in the flood plain. Because Austin has been successful with its buyout program in the past and continues to plan for future mitigation, Kermit Mahan said the city recently received a \$2 million grant from the state earmarked for flood relief.



Mower County,
Minnesota



Quick Facts

Sector:

Private

Cost:

\$2,000,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Saving an Architectural Landmark Making it Flood Resistant

Austin, MN - The former St. Paul's Evangelical Lutheran church will still be a gathering place. Despite decades of repetitive flooding damaging its interior and a subsequent buyout by FEMA and the city of Austin, the structure will again host celebrations. On a Sunday in July 2001, an audience that included over a 100 veterans stood by when the former church was dedicated as the Veterans Pavilion in the new Community Park along the river.

To stop the cycle of flooding, cleanup, and costly repairs in a neighborhood bordering the Cedar River, an acquisition program was begun after severe flooding in 1978. The project was supported by the citizens group FACTS, the City of Austin, the Minnesota Division of Emergency Management (MDEM) and FEMA. More structures were designated for buyouts after flooding in 1993.

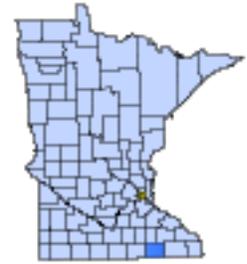
In the acquisition program, structures sturdy enough to be moved can be relocated out of the flood plain, while others are torn down and removed. The goal is to prevent future flooding damage and protect lives by removing structures from the 100-year flood plain. Based on the many floods of record in past decades, this goal has clearly been met.

The fate of St. Paul's Lutheran Church seemed to be that of demolition. Completed in 1953, the church building suffered costly flood damage in 1965 and 1978. With a \$100,000 loan from the U.S. Small Business Administration, the congregation was able to rebuild the church, occupying the building once again in 1980. More damages suffered in the 1993 flood prompted the church leadership to participate in the buyout program. The congregation relocated to temporary facilities and eventually built a new church in another part of Austin -- away from the floodwaters. The original church structure was slated to be torn down.

City leaders and residents considered the church an architectural landmark alongside the river and were disheartened by the idea of demolishing it. A park was planned for the space vacated by the other structures in the buyout program. And parks need sheltered picnic areas. The idea began to take shape that the church could remain in place as an open, public shelter.

"It was a landmark for the city," said Dennis Maschka, parks and recreation director for the City of Austin. "It was too nice of a structure to tear down and it was a nice centerpiece for the whole area."

Mayor Bonnie Besse Rietz and the Housing and Redevelopment Authority (HRA) pursued approval from FEMA to retain the structure in its current location. Because the city used FEMA Hazard Mitigation Grant Program funds to acquire the property, any structure remaining in a floodplain acquisition area had to meet strict criteria. Requirements state the structure could remain as a public facility that is "open on all sides and functionally related to a designated open space or recreational use" and upon completion of the project, "no application for additional disaster assistance will be made for any purpose with respect to the property to any Federal entity or source..." The city hired a design firm to assist in developing a renovation plan that would conform to the requirements, which was approved by FEMA in early 2000.



Mower County,
Minnesota



Quick Facts

Sector:

Private

Cost:

\$200,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Floodways and Wetlands Trenton Island, Wisconsin



Pierce County, WI - Wisconsin wetlands are in danger -- only half of the 10 million acres the state once had still exist. Wetlands play a vital role in the environment, storing water to prevent flooding, protecting water quality and providing wildlife habitat. Wetlands restoration is a positive by-product of actions taken to mitigate against flooding. An acquisition program conducted by Pierce County, Wisconsin, has done just that. It has prompted the return of wetlands to an island in the floodway of the Mississippi.

The great Midwest flood of 1993 set the stage for a \$6 million buyout program in Pierce County that would involve Trenton Island properties.

Flooding caused roads to close, washed away stabilizing vegetation and threatened lives. Building structures sustained debilitating damage in previous years: major floods occurred in 1952, 1965, 1969, 1993, 1997 and 2001, with minor floods experienced in 1967, 1975 and 1986. The structural damages in the 1993 floods for some were extensive. The losses exceeded 50 percent of the structure's value and thus subjected homeowners to the floodway regulation prohibiting repair or replacement of the structure.

Pierce County applied for mitigation funding because of the continual damage and exposure to environmental hazards. Property owners were provided with the opportunity of a buyout program using combined funding from FEMA's Hazard Mitigation Grant Program, Wisconsin Emergency Management and Wisconsin Department of Administration Community Development Block Grants.

The buyout program had several goals: eliminate loss of lives, minimize property damage and local response costs, bring the island community into compliance with already established zoning ordinances and restore the island to the best possible natural state. Pierce County also developed a Mitigation Plan in 1996.

Within Pierce County, 70 improved parcels were purchased along with three vacant parcels. Salvage materials provided an additional \$147,000 toward the acquisition. Participating property owners received the fair market value of their properties. Owners of primary residences were compensated for moving expenses and received a replacement housing cost differential as required under Wisconsin state law. (The housing cost differential payment made up the difference between the acquisition cost and the cost to purchase a comparable replacement). Over 80% of those participating in the buyout program chose to relocate within five miles of Trenton Island.

In 1997 and 2001, floodwaters crested two to three feet higher, respectively, than the 1993 flood, but damage was far less extensive because of the FEMA/state acquisition project. As the books are closed on this project, rough estimates indicate that with losses avoided in the 2001 flood alone, 80 percent of the project cost has been recovered.

The methodology used in projecting potential damage is based on first floor elevations and depth and duration of flooding. In 1993, 1997 and 2001, the depth of flooding got progressively worse. In all cases, the duration of water in structures lasted more than seven days.

Pierce County,
Wisconsin



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Fighting Floods In Kenosha Property is in Safer Place

Kenosha County, WI - In the span of 10 years, five emergency declarations have been issued for the Fox River Floodplain in Kenosha County. Following an emergency declaration in May 2004, when the Fox River again overflowed its banks, many fewer homes and residents were at risk, and the costs for response and recovery were substantially reduced. One reason for the remarkable turnaround is that over the 10-year period, 56 property owners have participated in the Fox River Flood Mitigation Program. The Kenosha County Housing Authority administers the program. The Southeastern Wisconsin Regional Planning Commission (SEWRPC) provides staff support.

In 1994, Kenosha County officials initiated a plan to help people move out of the flood-prone area that was mapped as the 100-year floodplain of the Fox River. Since then owners of 56 properties in the communities of Wheatland, Salem and Silver Lake have participated in the voluntary buyout program. Various resources were used to fund the program including Community Development Block Grants - Emergency Assistance Program (CDBG-EAP) from the Wisconsin Department of Commerce, and grant money from the Hazard Mitigation Grant Program and Flood Mitigation Assistance programs administered through Wisconsin Emergency Management (WEM).

During the emergency phase of the 2004 flood, Kenosha County Emergency Management/Homeland Security Director Ben Schliesman noted that as a result of the buyout program, emergency responders had far fewer doors to knock on as they went door-to-door to warn residents of the dangerous flooding situation. Schliesman reported that in addition to fewer enforcement personnel required, no rescue squads needed to be dispatched to help people leave the flooded area.

Following flooding in 2000, the Fox River crested at 2.75 feet over flood stage. Under a federally declared disaster, the communities of Salem and Silver Lake were reimbursed for emergency protective measures under the Public Assistance program for \$3,431 in expenses. Kenosha County received reimbursement for \$9,253 in expenses for emergency protective measures. Federal reimbursements included the cost of sandbagging and overtime hours incurred by emergency authorities in notifying and evacuating residents.

Under the disaster declaration of 2000, eligible flood victims in the Silver Lake and Salem communities received grants from FEMA that averaged \$2,800 for minimal repairs to make the home livable. If the homes had remained in the floodplain, with each successive flood event, like in 2004, an estimated \$156,800 in disaster recovery grants for these residents could have been incurred. Property replacement and cleanup costs not covered by grants, and the emotional strain of residents suffering property loss and damage must also be factored into the overall impact if no mitigation measures had been undertaken.

Thus far, the Fox River Flood Mitigation Program removed 56 structures at a cost of \$5.5 million dollars, with FEMA contributing \$2.5 million in HMGP and FMA grants and CDBG providing approximately \$3 million in grants.



Kenosha County,
Wisconsin



Quick Facts

Sector:

Private

Cost:

\$5,500,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



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

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

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



Illinois' Winning Formula Buyouts Assist Residents

The State of Illinois - After many Illinois river communities experienced the devastation of the Great Midwest Flood of 1993, it became obvious that floodplains are easily reclaimed by rivers following severe weather events. With a combined formula to enforce local floodplain regulations and return the floodplain to its rightful owner, the State of Illinois has succeeded in reducing damage from the most frequent cause of disaster declarations in Illinois.

Flooding has been a constant drain on emergency response and recovery resources. Illinois geography includes 900 rivers and waterways with a combined length of 13,200 miles and the State is bordered by 880 miles of the Mississippi, Wabash and Ohio Rivers. The State's mitigation initiatives have resulted in the purchase of over 3,500 flood-prone structures and some adjacent vacant lots (as of July 2002). Communities benefit when these parcels are returned to their natural functions. Using voluntary acquisition grant programs, the Illinois Emergency Management Agency (IEMA) staff has approved and administered more than \$100 million in project activities including flood mitigation, ice storm preparedness and wind-resistant construction.

IEMA and the Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) are aggressively pursuing the reduction of flooded properties, having proactively completed a detailed analysis of the National Flood Insurance Program repetitive loss structure inventory. More than 30 percent of these properties have already been removed from this list through voluntary buyouts.

The recipe for reducing flood damage can be attributed to a two-fold approach of eliminating existing flood problems and of local officials controlling new development in the floodplain, according to Paul Osman, Floodplain Management Program Coordinator, IDNR/OWR.

The success of the acquisition and floodplain management programs along the Illinois and Sangamon Rivers became evident during a recent flood event in the spring of 2002. The Sangamon River reached 10 feet over flood stage and the Illinois River topped at 15 feet over flood stage. County Emergency Managers and Local Floodplain Administrators reported if the buyouts had not taken place, many more houses would have been inundated with floodwaters. Horton remarked that at the confluence of the Illinois and Mississippi Rivers in the City of Grafton, an estimated 200 additional people would have faced the trauma of cleaning up had not 88 structures been removed from the floodplain by a successful buyout project.

"To be successful, you have to think outside of the box, have a can-do work ethic and avoid getting discouraged," said former State Hazard Mitigation Officer Jan Horton.

After the 1993 floods and subsequent acquisition program, IEMA organized the Interagency Mitigation Advisory Group (IMAG) to facilitate the implementation of various mitigation programs. In addition to IEMA, the group is composed of a variety of agencies, including the IDNR/OWR, Illinois Historic Preservation, Department of Commerce and Community Affairs, FEMA, and the American Red Cross, with staff who can provide expertise in acquisition and elevation projects.

State-wide,
Illinois



Quick Facts

Year:
1993

Sector:
Public/Private Partnership

Cost:
Amount Not Available

Primary Activity/Project:
Acquisition/Buyouts

Primary Funding:
Private funds



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



Acquisition Projects Help Flood-Prone Community Better Off

Cleveland, IL - It's just a little winding river in northwestern Illinois, but the Rock River drains a large watershed that includes the Upper Rock, the Pecatonica River in Wisconsin and even as far north as Lake Winnebago. When heavy rain or snow melt occurs in that watershed, the Rock River can rise quickly. That's why residents of this small village of 300 near the mouth of the Rock River have endured flooding year after year.

But the recurring devastation of flooding was considerably lessened during the last two flood events: following an ice jam on the river in February of 2001 and a tremendous amount of rainfall in June of 2002. An acquisition program conducted under FEMA's Hazard Mitigation Grant Program removed a total of 31 structures from the floodplain that had received repeated damage over the years, including the home of Nancy Hoskins. Her house had filled with three feet of water, then four and a half feet, then five and half feet in three consecutive floods before she sold her home through the acquisition program in 2001.

After the Great Midwestern Flood of 1993, members of the community began discussing the possibility of an acquisition project with the Illinois Emergency Management Agency (IEMA). A major flood in 1997 created a strong incentive for the program and by February 1998, properties were being purchased. IEMA and the Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) coordinated the voluntary buyout of 13 homes in Phase I and 18 homes to date in Phase II. An HMGP grant provided \$989,742 for the projects, along with a Floodplain Mitigation Assistance grant of \$472,920. The IDNR contributed the 25% matching funds, which totaled \$487,554.

"The community of Cleveland focused on helping those in harm's way to have an alternative to flooding, especially those who were elderly or ill in Phase I of the project," said Bob Sherman, IEMA Mitigation Planner. He added that Bob Collis, Cleveland's point of contact for the acquisition program, "worked hard to make sure people got out that wanted to."

For Collis, explaining the components of the buyout program to residents was a priority when initiating the program. Collis and local officials met with residents prior to the public meeting just to explain how everything worked.

"Then those people who were participating in Phase I attended the public meeting and representatives from IEMA, IDNR and FEMA helped explain the whole program to them," said Collis.

Although a buyout program can be a lengthy and complex process, Hoskins said that when the river rose in June 2002 she was glad she had participated: "This year there would have been at least five and a half feet in my house if it had still been there."

Community leaders and IEMA hope to bring that same sense of security to those approximately 25 homeowners who were affected by floodwaters in 2002. Initiatives are currently being taken to continue successfully mitigating in the Rock River floodplain with a Phase III buyout.

Henry County, Illinois



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA



Floodplain Project Unites Community Playground Replaces Vulnerable Homes

Petersburg, IL - On a hot day in late June of 2002, there was a flurry of activity in the floodplain of the Sangamon River in Petersburg, Illinois. It wasn't flood fighting this time. About 40 people, from high school freshmen to senior members of the community, gathered to connect brightly colored pieces into play equipment for a new pre-school playground in a shady spot where flood-prone buildings once stood.

That afternoon was a culmination of years of dedicated work. First, 30 flood-damaged structures were acquired and removed from the floodplain. Then the PORTA High School Community Problem Solvers (CmPS) spent four years raising funds and community support for the re-use project. Using the techniques learned from the Problem Solvers organization, the group developed and implemented plans for an approved re-use of City-owned land purchased in the buyout program, obtaining high praise from IEMA and IDNR for the group's creativity, initiative and interaction of the whole community of Petersburg.

Just a few miles from where Abraham Lincoln spent his early adult years, the Sangamon River has repeatedly flooded the City of Petersburg. Homes in the older section of town nearest the river sustained damage and declining property values from flooding in 1979, 1981, 1983, 1990, 1993, and 1994. After the flood of 1994 in which one person died, FEMA and IEMA authorized the use of Hazard Mitigation Grant Program (HMGP) funds for a buyout of floodprone properties in Petersburg. A total of 43 units were acquired and the structures removed at a project cost of \$1,124,589, with FEMA HMGP covering \$818,252 and the Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR) contributing \$305,201 and the city paying \$1,135.

The re-use of vacated land from acquisition projects must follow strict guidelines in abiding by deed restriction language. Basically, no new structures can be introduced.

"So many communities who participate in buyouts are locked into the idea that open space means just green grass," said Ron Davis, IEMA Hazard Mitigation Specialist. "In Petersburg, the kids started thinking about other options and took it upon themselves to make it into something else."

Throughout the process of brainstorming for ideas on how to re-use the vacated lots, the group came up with options that would be appropriate for the floodplain. They eventually decided on a flower garden and playground. The group raised \$16,000 through numerous fundraising activities, including the "Decorate an Abe" contest and auction that involved businesses in town decorating a cutout of the area's historic figure. They delivered presentations in Springfield, Chicago, and Charlotte, North Carolina, for the annual meeting of the Association of State Floodplain Managers (ASFPM). They received a \$50,000 grant from the State of Illinois, and Floodplain Managers from around the nation donated over \$1,000 to their project. The \$67,000 in grants and fundraising covered the cost of picnic tables, grills, benches, playground equipment, and a fountain and decorative brick path for the garden.

Menard County,
Illinois



Quick Facts

Sector:

Private

Cost:

\$134,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Acquisition in Rahway Brings Ecological Renewal

Rahway, NJ - When Hurricane Floyd brought flooding that exceeded the 100-year flood elevation in Sept. 1999, Rahway residents were already living on higher and safer ground.

The Union and Allen Street areas, which had been ravaged by floods in the past, were flooded again, only this time there were several empty lots where houses had previously stood.

The City of Rahway, using funds from FEMA Flood Mitigation Assistance and New Jersey Green Acres, put together an acquisition program in 1995. The former homeowners who resided in the Union and Allen Street area decided to sell their homes and move elsewhere in the city.

City officials also put conditions on their approval of the Union County Utilities Authority Resources Recovery Facility, which was located on a former landfill. The utility was constructed to repair the environmental damage done by years of dumping along the bank of the Rahway River. The authority agreed to a wetland restoration project that can rise and fall with the level of the river.

Today, a visitor could watch a great blue heron take flight at the public park and nature trail along the river. Phragmites, spartina and other native waterside plants are being used to protect and stabilize the riverbank. A floating boardwalk, a cormorant and a belted kingfisher also occupy the area.



**Union County,
New Jersey**



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Escaping the Water Frankstown, PA

Frankstown, PA- Some Linds Crossing residents refer to the Little Juniata River that flows by their houses as "The Gentle Giant." On a normal day, the stream is gentle, shallow and slow moving, though hardly a giant. After a hard rain upstream, however, it quickly becomes gigantic and not at all gentle. Linds Crossing was developed in 1911 as a "Summer Home Farm" in rural Blair County, a modest recreation area of weekend and summer cottages, small frame houses huddled densely along the Little Juniata.

Over the years, the neighborhood in Frankstown Township, near Hollidaysburg, evolved. Today, most residents live there full time. Homeowners praise its beauty, peace and quiet and absence of urban stress. Many have lived there for decades and most wish to stay, but they pay a price for the advantages they extol. The same quiet river that provides boating and fishing, refreshing summer swims and cool breezes can change dramatically with little warning. The Little Juniata floods often. Small, localized bouts of high water also are commonplace.

The price was becoming too high. Jean Jordan had lived in her house more than 20 years. The flooding risk would have made her house difficult to sell. She was certain she could not get enough for it to buy anything similar in a safer spot, but she was experiencing "flooding about three times a year, and it was becoming "too hard to clean up after the floods."

Under the Hazard Mitigation Grant Program (HMGP), Jordan could stay in her home but not run the risk of continual flooding. Raising Jordan's house on a new concrete-block foundation put it above flood level, but left it in its surroundings. "I'm so glad it's up in the air," she said. " I don't know how to act."

Dave and Wendy Reighard took a different approach under the HMGP umbrella. They decided to sell their house and move a short distance away. As much as they liked their old location, the "peace of mind" they enjoy in their new home is "priceless."

The driving force behind the Linds Crossing Project was Richard Furmanchik, executive director, and Beverly Pounds, deputy executive director, of the County of Blair Redevelopment and Housing Authority. They shepherded the project from beginning to end. In the process, they won the gratitude and respect of a good many residents.

Wendy Reighard agreed the "program was a success...The number one goal was to get people out of harm's way, and it definitely did that." She praised the attention Furmanchik and Pounds paid to the concerns of the Linds Crossing population. "They listened to people," she said. "I'm very pleased with the way the people in this office treated us." The fourth time the Reighards were flooded was in 1997, they were negotiating with a realtor for their new house. "We had moved everything downstairs in preparation for the move," David Reighard recalled. "The water came through and trashed (the house) two weeks before we were ready to move."

All told, 38 Linds Crossing residents moved above flood levels, and 37 moved out of the area entirely through the HMGP project.



Blair County,
Pennsylvania



Quick Facts

Sector:
Public/Private Partnership

Cost:
Amount Not Available

Primary Activity/Project:
Acquisition/Buyouts

Primary Funding:
Hazard Mitigation Grant Program (HMGP)



FEMA



Grand Blanc Family High and Dry Old Home Under Nine Feet of Water

Grand Blanc, MI - When the severe storms, tornadoes, and flooding struck the lower part of the State of Michigan in late May 2004, few had any idea that it would affect tens of thousands of Michigan families and cost more than \$51 million in grants and low-interest loans for disaster assistance. For one Grand Blanc family, the storms and flooding had the opposite affect. What use to be their home was flooded again, but this time the Minard family was sitting high and dry and didn't need any disaster assistance. When Karen Minard returned to her old neighborhood near Thread Creek, she couldn't believe her eyes after discovering nine feet of water in the area she had once called "home."

It was in 2000 when a flood inundated the city of Grand Blanc, located a short 10 miles south of Flint, severely damaging many homes and leaving roads impassible. Flooding from Thread Creek plus poor drainage caused major flooding that left homeowners helpless and city officials unable to control the rising creek. Together, they took a proactive approach to deal with the repeated problem. A Federal disaster declaration made grant money available for mitigation projects throughout the State. Hence, Grand Blanc decided to pursue a Hazard Mitigation Grant Program (HMGP) project for the acquisition of homes damaged repeatedly from flooding.

The double threat of flooding from Thread Creek and sewage backup led the Minards to participate in the buyout project. The Minards were one of five families who participated in the voluntary buyout program just seven months before the May 2004 flooding. Four of the acquired homes were still awaiting demolition when flooding struck again.

According to Randy Byrne, City Manager of Grand Blanc, City Officials were getting tired of repairing the same damage after every flood and thought a proposal to acquire these homes at a cost share of 75 percent Federal and 25 percent non-Federal match could help to solve the problem. The Community submitted its proposal, and the project was selected by the Michigan State Police/Emergency Management Division (MSP/EMD). When FEMA approved funding, City Officials provided homeowners specific criteria for participation that included an appraisal and offer to buy out the property at pre-flood fair market value. Five homeowners decided to be a part of the voluntary project, and the Federal share of the project was \$626,322.

In addition to the families who occupied the acquired homes, the Community also benefited from the buyout. A major component of HMGP is that ownership of the acquired land reverts to the City with a deed restriction stating it must remain open space. The City used the land, demonstrating a conscientious approach to floodplain management, by incorporating it into Rusk Park. Now when Thread Creek floods, there is no maintenance required for the Park.

The key, according to Byrne, "is having a casual meeting and getting everyone on the same page." Informing the residents about the available options is imperative.

Genesee County,
Michigan



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



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

High and Dry in Chickamauga Elevated Homes Prove Value

Chickamauga, GA— In mid-September 2004, Hurricane Ivan brought some of the heaviest rainfall ever recorded to the City of Chickamauga, a small town in northwest Georgia close to Chattanooga, Tennessee. This caused the West Chickamauga Creek to rise, as heavy rains have done for years. The rising waters inundated properties in the creek's floodplain. This time, one of the affected properties was Charles and Tina Hill's detached garage.

"The water was knee-high in the garage," Charles Hill said, "but the house came through just fine. If the house had not been elevated, the water would have been in our living room!"

Many of the homes in the Hill's neighborhood were built in the early 1900s. Although the city has experienced occasional high water over the years, it was not until the 1990s, especially after the flooding caused by Hurricane Opal in 1995, that the Chickamauga was able to justify a flood mitigation project.

The project got underway in earnest in 2000 with funds from the Federal Emergency Management Agency's Hazard Mitigation Grant Program and the Georgia Emergency Management Agency. The City of Chickamauga offered residents along West Chickamauga Creek three choices: have their property bought out by the city, have their homes elevated, or do nothing. Most residents chose to elevate their homes.

"Approximately 50 elevations were completed in two neighborhoods near the creek," said John Culpepper, utilities manager for the City of Chickamauga. "We also bought out several homes and created a small park."

"The one-percent-chance flood level in the area of the project is 728 feet above sea level," Culpepper said. "The homes were elevated to 731 feet, as were all the utilities." "Only two residents chose not to participate in the program," Culpepper said. "Everyone else was [very pleased] to participate."

The project has been beneficial to the residents. "It has improved their quality of life, no doubt about it. For anyone with a disability, we even put the little 'ol chair on the rail that you sit on and ride on up to the door rather than having to, say, roll a wheelchair up a long ramp," Culpepper said. He added, "there was even money in the program we could use in case a resident with a disability needed a new switchbox or a wheelchair-accessible bathroom or something. So it was a good project for all the people in these neighborhoods. A very good project."

Charles and Tina Hill agree. Although they did not live in their home before it was elevated, they did experience high water in the neighborhood once before. "That time, the water just barely reached the garage door," Charles said. "This time it actually got in there and you can still see where it came up to about the forth row of blocks in the space under the house."

"The creek went back down and the water under the house and in the garage all drained out in about 12 hours," Charles said. "We have some plastic sheeting we need to get out from under the house so that the dirt will dry faster." "It's good, though," Tina said, "that the wet is all down there and in the garage. I'm really glad our house stayed dry."



Walker County,
Georgia



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buyouts in Kokomo, Indiana Mitigation is Everyones Responsibility

Kokomo, IN - You can almost tell by its name a creek called Wildcat is going to be hard to tame. Every few years, an area in Kokomo, Indiana gets inundated when the creek jumps its banks. In 2003, the flood was said to be the worst in 90 years. In 2005, predictions were even more dire. This time, however folks were prepared.

People learned from what happened in 2003 and took steps to protect themselves, said Debra Cook, City of Kokomo Community Specialist. Many bought sump pumps and raised appliances, like furnaces and hot water heaters, above previous flood marks. A few even thought to buy generators so that when the power was cut off to the neighborhood as a safety precaution, they had a back-up.

The community as a whole also decided to take preventative measures into their own hands. After the 2003 floods, a town meeting was held to determine the best course of action. They called upon the local media, as well as volunteer flood recovery teams from local churches and civic groups.

It was determined that elevating homes would be cost prohibitive. City and county ordinances designate a home substantially damaged if it has sustained more than a 40-percent loss. This requires homeowners to adhere to newer, stricter codes when rebuilding and that can really add to the cost, said Cook. So, it was agreed that buying the properties, removing the structures and converting the area into green space was the best option.

In deciding which homes to buy out, the town followed guidelines recommended by Housing and Urban Development (HUD). A top priority were homes that were owner-occupied and that had sustained substantial damage from flooding again, in this community that was more than a 40-percent loss. Next were homes not occupied by the owner, but that had suffered substantial damage. Following this came owner-occupied homes with less than substantial damage, and finally unoccupied homes with less than 40-percent damage. Homes owned by the elderly, handicapped and those with low income were also targeted.

To keep potential participants and the community at large engaged while the city applied through the state for Hazard Mitigation Grant Program (HMGP) funds from the Department of Homeland Security's Federal Emergency Management Agency (FEMA), Cook sent out special mailings and made herself available by phone to answer any specific questions. Because the process takes time, I wanted to let people know about some alternative assistance programs both public and private that might be able to help out in the interim, said Cook.

The city also looked into additional sources to fund the project. Money from HUD Block Grants, as well as from the Urban Enterprise Association of Kokomo, whose enterprise zone programs are designed to stimulate local community and business redevelopment in distressed areas, were particularly significant. By broadening their vision and pooling resources, Kokomo was able to include more properties in the project and further limit the financial and emotional toll of repetitive flooding on the community.



Howard County,
Indiana



Quick Facts

Sector:

Private

Cost:

\$430,688.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Home Buyout is the Best Option Flood-Prone Home Buyout Thrills Owners

Austin, MN - After Richard and Helen Johnson were flooded the first time, they knew the prospect to participate in the City's buyout project was the best option for them. They waited patiently. When they were offered a buyout of their flood prone home, they were thrilled.

Following the 2000 flood, funding became available for the purchase of their home. After being flooded in 1978, 1993, 1997 and 2000, Richard said the buyout was a wonderful opportunity to better our situation.

The City of Austin has completed over 200 property buyouts since 1978 with funds from FEMA, the State of Minnesota and the City of Austin. These buyouts have saved millions of dollars in flood damage. After the 2000 flood, the City utilized Flood Mitigation Assistance (FMA) Program funds, providing 100 percent of funding for the project, to acquire 39 residential properties in the Cedar River floodplain, including the Johnsons' home. The Housing and Redevelopment Authority of Austin administered the FMA project on behalf of the City.

FEMA and State of Minnesota Division of Homeland Security and Emergency Management (HSEM) returned to the area in September of 2004 when the Cedar River flooded again. This time Richard and Helen felt fortunate to be high and dry. "If we had still been in the floodplain, this last flood would have come in through the first floor windows and substantially damaged our home," said Richard.

Buyout projects have become a well-received mitigation measure to permanently remove people out of harm's way. In the case of the Johnsons, they felt very satisfied with their \$72,000 buyout offer and were able to purchase another home out of the floodplain in the same community. Helen said, "because we lived in a floodplain, we would not have been able to sell our home at a reasonable price." Richard added, "I feel that people should take advantage of the buyout program when it is offered to them."

Now a park is being created in their former neighborhood. When they visit the area, they feel very lucky to have participated in the buyout. This time when the floodwaters were rising, the Johnsons could count their blessings and return to their safe, dry home. Helen sighed and said, "we would not have the strength to go through another flood."



Mower County,
Minnesota



Quick Facts

Sector:

Public

Cost:

\$72,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Planning is Key to Mitigation Success Achieved by Community



Bluffton, Indiana – Bluffton, an historic town set along the Wabash River, regularly pays a price for its bucolic setting. The Wabash has overflowed its banks many times since the Great Flood of 1913. The floods in 2003 and 2005 forced residents to evacuate and encouraged them to consider steps they could take to protect themselves and their property in the future. "As the waters were rising in 2003, we brought in surveyors and engineers to mark levels," said Mayor Ted Ellis. "They let us know we were right on target with our established floodplain management guidelines and our Base Flood Elevation figures, as shown on the FEMA maps."

Early in 2005, threatening floodwaters came again. This time, however, the Town was better prepared to concentrate response efforts in areas with the greatest potential for significant damage. "Through the FEMA Hazard Mitigation Grant Program, we were able to purchase properties and turn them into green space," said Jerri Lehman, Wells County Emergency Management Director. "The area is no longer a drain on resources or emotions."

Buying homes and properties, some held by families for generations, can be a challenge even when they have sustained repetitive flood damage. Regular town meetings were held to discuss mitigation options and explain how various programs would work. Once everyone agreed that a buyout was their best option, the community readily approved funding to meet the cost-share obligation of the FEMA grant.

The Town's next task was to decide which homes they would offer to purchase and remove as part of the initiative. Properties were targeted based on their position in the floodplain and grouped into four categories: owner-occupied with greater than 50 percent flood damage, not occupied by owner with greater than 50 percent flood damage, owner-occupied with less than 50 percent flood damage, and not occupied by owner with less than 50 percent flood damage. All properties in the first three categories were included in the project. A total of 25 residential structures were approved for acquisition and demolition.

To remove the structures on the selected properties, the town chose licensed contractors through their standard bidding process. "When the time came to level the homes, we gave the owners the option to attend" said Ellis. Some decided to watch, while others said, "Don't even tell me when it's going to happen. I don't want to know." It's a hard thing, the family's losing part of it's history, and the community part of its flavor."

"The buyout program worked for us on several levels," noted Ellis. "First, we didn't have to waste valuable time trying to protect an area that was going to get hit...More importantly, folks in Bluffton don't get stressed every time the rain comes. They know things are being done to ensure their safety and protect their property, and they are an important part of the process."

**Wells County,
Indiana**



Quick Facts

Sector:

Private

Cost:

\$929,623.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Turning Water into Wine Flood Mitigation in Napa Valley

Napa Valley, CA – Napa Valley produces some of the best American wines, but until flood mitigation techniques were implemented in 1997, there was great risk involved. In 1986 and 1995, major floods threatened the valley’s 200 wineries. In 1997 however, the Citizens for Napa River Flood Management (CNRFM) decided to take a different approach to the flooding problem, breaking with the tradition of flood control, instead favoring flood management. Whereas in the past, engineers tried to halt flooding, the new approach aims to work with the natural floodplain to better absorb excess flooding. As Karen Rippey of the Friends of the Napa River said, “This plan is designed to manage the river, not control it.”

Napa Valley is a well-known tourist destination, drawing more than 5 million visitors annually, but the area is prone to flooding. Between 1862 and 1997, the valley saw 27 major floods. The largest occurred in 1986, with 20 inches of rain falling in 48 hours, causing over \$140 million in damage, three fatalities, and requiring the evacuation of 7,000 people. A flood of similar size occurred in 1995, damaging businesses and residences and causing over \$100 million in damage.

Napa County has the third-highest amount of flood-damage claims in the State, owing to the flooding common to the area. In 1996, the CNRFM was formed, enabling residents to take a more active role in preventing flood damage. The group approved the Napa Project, a plan designed to work with the natural environment to help prevent further losses from flood damage.

The plan, leveraging seed money from a \$7 million grant from FEMA’s Hazard Grant Mitigation Program, is expected to take five years at a cost of \$220 million, money that will be made back in an estimated 11 years by avoiding property damage. In addition, the people of Napa City approved a 0.5 percent increase in the sales tax to help pay for the project. Napa City has applied for a \$20 million grant from the Federal Highway Administration to replace three bridges. The US Army Corps of Engineers will also be responsible for building 13 new bridges in the area.

Now that Napa has taken an active role in protecting itself from flood damage, citizens and business owners like Herb Schmidt, VP for Public Affairs at Robert Mondavi Winery, feel much more at ease: “We believe that the success of this project will allow visitors to focus their attention on the beauty of all our wines and our valley rather than the worry of potential flooding.”



**Napa County,
California**



Quick Facts

Sector:

Public

Cost:

\$220,000,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Acquisition Project, Clinton County New York



Schuyler Falls, NY - Severe flooding in the winter of 1996 motivated residents in the Town of Schuyler Falls to move out of flood impacted areas. When the Town refused to be the applicant in the buyout, residents prevailed upon Clinton County to be the buyout applicant. The match was obtained and the buyout proceeded, with savings realized in under a year and two additional properties acquired.

When the Town refused to be the applicant for the buyout, citing a possible loss of tax-base, the County agreed to be the applicant on the condition that matching funds were received from the State.

The state senator from the area was successful in attaining the match from the State Legislature, a key reason the buyout project was successful. The County donated in-kind services, and additional funds were received from private sources.

In all, the acquisition under the Hazard Mitigation Grant Program (HMGP) involved purchasing 19 residential structures and three empty lots along the Saranac River. Based on the damage to these residences during the January 1996 flood and the history of flooding in Schuyler Falls, it was estimated that full benefit payback would occur within 20 years.

Flooding struck again in November 1996, and although they were impacted, most of the acquired properties were vacant. Substantial savings from this project were realized in less than a year. The project was completed under budget with two additional properties acquired.

A follow-up analysis confirmed that the acquisition project had a minimal impact on the tax base in Schuyler Falls. The total assessed value of the acquired neighborhood was approximately \$1.5 million. Currently, there are \$150 million assessments in the Town. The acquisition of the properties affected one cent per thousand, and therefore, did not have a detrimental effect on the tax base in the community.

Clinton County,
New York



Quick Facts

Sector:

Public

Cost:

\$692,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Acquisition, Evaluation & Analysis: Acquisition Successes in Birmingham

Birmingham, AL - The City of Birmingham faces its greatest hazard from flooding associated with severe weather. Birmingham's high population density and development render the City particularly vulnerable to the effects of flooding. In an effort to end this damage cycle, FEMA and the U.S. Army Corps of Engineers (USACE) provided funding for one of the largest flood acquisition project ever implemented. The buyouts under this project have avoided losses of over \$60 million on an investment of \$36 million.

Village Creek's floodplain comprises 53 percent of Birmingham's Special Flood Hazard Area. In some locations, floodwaters can rise as quickly as 3 feet per hour. Village Creek has flooded nearby neighborhoods over 20 times in the past 20 years. Since 1977, federally declared flooding events have occurred 11 times. This history of repetitive flooding and associated damages prompted the City and the USACE to seek congressional funding to accomplish both structural and non-structural solutions to resolve the cycle of repetitive flooding.

The acquisition project was a cooperative effort by the City, the State, and the Federal government that spanned 20 years and removed 735 structures from the floodplain. Additionally, the project returned the floodplain to its natural state as a retention basin for floodwaters; breaking the cycle of flood damage in the floodplain of Village Creek. The report "Losses Avoided in Birmingham Alabama" documents the direct losses avoided resulting from the federally cost-shared Village Creek Acquisition Projects.

When severe storms hit Birmingham with four inches of rain on March 10 and 11, 2000, in the residential areas surrounding Village Creek, there was little residential property damage, no displacement of residents, and no need for assistance even though floods elsewhere in the City were serious enough to result in a Presidential disaster declaration. The financial savings realized by the community as the direct result of implementing the acquisition project can be put toward other civic improvements/projects.



Jefferson County,
Alabama



Quick Facts

Sector:

Public

Cost:

\$37,500,000.00 (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

Moving Homes From a Floodplain Initiatives in Allegany County

Allegany County, MD - Allegany County's mitigation initiative contributed to the long-term endeavors by earmarking funds to relocate units for an acquisition project. Despite numerous setbacks, the project reached a successful conclusion due to the County and its contractors.

In the spring of 1998, the review and approval process began with the accumulation of supporting cost/benefit data. The project called for the relocation of units within a manufactured home park and then returning the area to a natural habitat/open space. The units were all located within the 100-year flood boundary of Evitts Creek and had experience flooding numerous times in the past.

As the units were being evaluated for relocation, owners sought alternate pad sites. Only four found available pads, the remainder were unable to find vacant pads in other area manufactured home parks. Furthermore, the units did not meet the new zoning regulations due to their age and construction and an evaluation of the homes indicated that most were too fragile to move safely. By April 1999, the project had to be restructured to acquire the units.

What seemed to be a straightforward purchase and relocation took over two years at a final cost of \$390,000, double the amount of funding set aside by the county. FEMA expressed concern for the continued viability of the project, but the County was willing to continue because the staff strongly believed in relocating the units outside the 100-year floodplain.

The County's relentless outreach to the residents and the use of contract personnel well-versed in the Uniform Relocation Assistance and Real Property Acquisition Policies Act, were the key reasons the process moved forward with the support of the tenants.

By the winter of 1999, the last manufactured home was removed from the site and by June 2000, every family was relocated to affordable housing and the manufactured home park was in the process of being returned to a natural state.



Allegany County, Maryland



Quick Facts

Sector:

Public

Cost:

\$390,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

State sources



FEMA

The Missouri Buyout Program Success Stories

The State of Missouri - Anyone who lived through the 1993 Midwest floods will never forget them. Of the nine states affected by flooding during the spring and summer of 1993, Missouri was the hardest hit, with damages totaling \$3 billion. The stench of waterlogged trash and rotting food lingered in towns for weeks and even months.

The Missouri floods of 1993 ruined more cropland, destroyed more residences and businesses, and cost taxpayers more money than any other flood in the state's long history of flooding. For the thousands of Missourians who lost their homes, businesses, and everything they cherished, the floods were a living nightmare. But thankfully for many, it has not been a recurring nightmare.

Since 1993, FEMA and Missouri State Emergency Management Agency (SEMA) have partnered with local governments to help thousands of willing homeowners move out of the floodplain. The people profiled in this report are just a few of the countless success stories from the Missouri Buyout Program. Devastated by the floods of 1993 and 1995, these people and communities took seriously the opportunity to move out of harm's way.

People across the state of Missouri took pride in taking responsibility for the safety of their families, homes, and businesses. In the process, they spared taxpayers the expense of additional federal disaster assistance, which they no longer need to weather the storms.

Since 1993, FEMA has provided \$54.9 million to the State of Missouri in Hazard Mitigation Grant Program (HMGP) funding. Missouri has used the majority of these funds to acquire, relocate, or elevate more than 4,800 properties.

When floodwaters returned to Missouri in May of 2002, these Missourians - and thousands like them - were spared the heartache of watching their homes and lives devastated by another disaster.



State-wide,
Missouri



Quick Facts

Sector:

Public

Cost:

\$54,900,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

The New Grand Forks Committed to Reducing Future Losses

Grand Forks, ND - In April 1997 the Red River overflowed its banks, flooding 8,600 homes in Grand Forks, North Dakota. While the floodwaters rose, a fire broke out in the downtown business district. Between the flood and the fire, all 315 businesses were affected. The successful rebuilding of the city resulted from partnerships among residents, local businesses and local, state and federal governments. The city also established a commitment to reducing future losses through mitigation projects.

City leaders set the tone for rebuilding almost immediately. After the water receded, they enforced local regulations requiring rebuilding with special flood protection measures and by implementing several other mitigation projects.

The city's water treatment plant was rebuilt with measures to elevate sensitive equipment, creating a flood emergency management plan, prohibiting further construction along the Red River and with the addition of hollow core metal shields to protect windows and doors. These measures will ensure continued operation of the plant through floods, blizzards and severe storms.

A new elementary school was constructed above the base-flood elevation, replacing two substantially damaged schools.

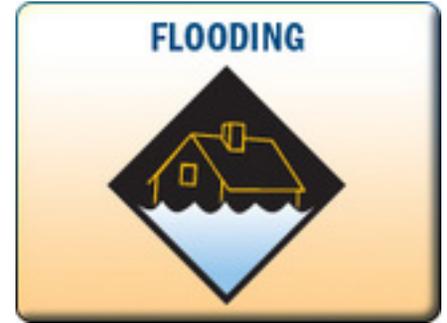
A buyout program was funded through FEMA's hazard mitigation grants, by the state, city and under HUD's Community Development Block Program. Nearly 600 residential and 40 commercial properties in the floodplain were voluntarily sold to the city through a buyout program. Because of the buyout, home and business owners have moved out of harm's way to safer areas. The flood-ravaged buildings also have been demolished and the resulting green space will remain open and undeveloped forever.

Through the first three years of recovery, the new disaster-resistance philosophy has taken hold.

"Rebuilding with disaster-resistance measures is the best advice we've ever been given and I have the greatest trust that they will work," said Pat Owens, former Mayor of Grand Forks during the 1997 flooding and recovery.



**Grand Forks County,
North Dakota**



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Boone Couple Heads Uphill Avoids Flooding

Madison, WV - Jack and Elvonna Bowyer had flood insurance, but when severe flooding of the Spruce and Pond Fork rivers dumped seven inches of water in their first floor and 12 inches of water in their garage, they were at wits end.

The Bowyers had gotten used to living in their home at the bottom of the hill, but they never got used to the high water and flooding they experienced on a regular basis.

“When I purchased the home in Madison in 1994, there were other nice homes on the street and I just never thought that it would be flooded all the time the way it was,” Elvonna Bowyer said. It didn’t take long for the Boone County couple to realize they were “smack in the middle of the floodplain.”

“I believe it was in May of 2001, and we just didn’t know what we were going to do,” Elvonna Bowyer said.

The Bowyer’s said when the offer came to be part of FEMA’s Hazard Mitigation Grant Program (HMGP), which would help them relocate, they jumped at the chance.

“They talked to us during the day and it didn’t take us long... by that evening we decided we were going,” Elvonna Bowyer said. In all, four homes qualified for HMGP in the Old River Road area, and in December of 2002, the couple moved into an existing home up the hill. They borrowed additional money to complete renovations. “We were just tickled to death to get out of that damp, dank, bottom (of the hill),” Elvonna Bowyer said.

“I can’t tell you the number of times we had to grab the dogs, get the cars and go,” Jack Bowyer explained. At night, the couple spoke of one of them getting up to keep watch while the other tried to get some sleep. “You just never knew if it was going to reach us or not,” he added.

Now when it rains, the Bowyer’s just go back to sleep. “It was well worth it and we don’t regret it at all. We are so happy, we call this our ‘sleep easy’ home,” Elvonna Bowyer laughed.



Boone County,
West Virginia



Quick Facts

Sector:

Private

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Floodprone Structures Acquisitions Becomes Park Area

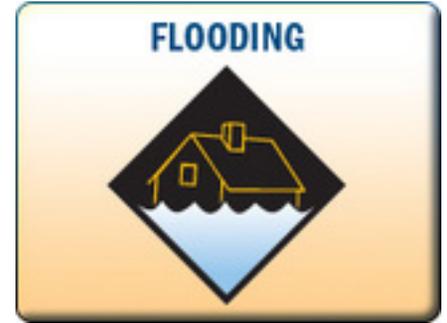
Tulsa, OK - Floods have devastated the City of Tulsa many times, an average of about once every 5 years. Through the Hazard Mitigation Grant Program (HMGP) and the Flood Mitigation Assistance (FMA) Program, the City has taken measures to mitigate against these costly floods. The City has also taken measures to increase public awareness and support of flood mitigation via the production of videos and publications.

Through HMGP funding, the City of Tulsa acquired 17 repetitive loss structures. An additional five structures were acquired under the FMA program. These structures were among the 100 repetitive loss structures addressed in the City's Master Drainage Plan. As a result of the acquisition, all acquired homes were demolished and the land was reverted to a park area and water detention site.

The City also received a public awareness grant to educate and improve flood awareness throughout the City and county. Through the FMA program, the community received a planning grant to produce a Flood Mitigation Plan aimed at further reducing repetitive loss within the City of Tulsa.



Tulsa County, Oklahoma



Quick Facts

Sector:

Public

Cost:

\$467,429.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Community Park Prevents Damage Acquisitions Prevent Future Flood Damage

Skagit County, WA - After 34 homes on the west side of the Skagit River, opposite downtown Mount Vernon, were severely damaged in the 1996 floods, city officials concluded it was time to take aggressive steps to prevent this kind of damage in the future.

In partnership with the Washington State Division of Emergency Management and FEMA, the City of Mount Vernon acquired 34 flood-prone properties. The designated houses were then demolished (or moved), and the entire site was combined to form an enlarged community park.

The acquisition totaled approximately \$2,375,000, financed from the post-disaster Federal Hazard Mitigation Grant Program (HMGP). Substantial though the grant was, its total amount pales in comparison to the cost of replacing and repairing the homes that stood there.

During the 2003 flooding, the entire park was under water again. But this time there were no homes to repair or replace, and no people to evacuate or rescue. After the water receded, all that needed doing was some minor cleanup.

The City of Mount Vernon saved itself from serious flooding, thanks to thousands of citizens who filled and stacked sandbags to protect the downtown area, and to city planners who took steps to minimize future damage after the 1995-96 floods.



**Skagit County,
Washington**



Quick Facts

Sector:

Public

Cost:

\$2,375,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Baptist Bottoms Acquisition Project

Geneva, AL - At the end of a week of rain and flooding in March 1990, about 6,000 people in Alabama had lost their homes or had seen their property damaged. Hundreds more had to seek shelter in neighboring Georgia and the Florida panhandle. Estimated damages throughout the State were at more than \$100 million. The hardship was summed up at the time by Alabama Governor Guy Hunt, who said, "A lifetime of hard work for some disappeared into the raging floodwaters. A lot of our people have never witnessed such devastation from floods before."

Four years later, in early June 1994, Tropical Storm Alberto moved slowly inland, leaving a trail of flooding and destruction along the Pea and Choctawhatchee Rivers. Small towns along these waterways were hit particularly hard.

In the aftermath of the 1994 flood, the Town of Geneva officials developed a model hazard mitigation project. They began an aggressive campaign to convince homeowners in the flood-prone Baptist Bottoms area to sell their homes and relocate out of the floodplain. Eventually, they submitted a grant application to FEMA for the acquisition of 54 homes. FEMA agreed to fund the buyout of dozens of buildings within the floodway of Double Bridges Creek in Baptist Bottoms.

In the first week of March 1998, a heavy storm system from the Gulf of Mexico moved inland across the southeastern United States. Torrential rains swept through the region and caused serious flooding in several Alabama counties. The flooding not only damaged hundreds of homes and businesses, it also took a serious toll on infrastructure. Several bridges and culverts were overwhelmed, roads were washed out, emergency services were delayed, and water treatment facilities were damaged.

The buyout of 30 homes (the actual number acquired prior to the spring of 1998 floods) after the 1994 flood proved to be an effective investment in Geneva. FEMA's benefit-cost analysis determined that for an upfront cost of approximately \$672,000 to acquire flood-prone properties, over \$1.4 million in damages and losses were avoided. All of the acquired properties lay deep in the floodplain, and would have been flooded had they remained. If these buildings had merely been repaired after the 1994 flood, many would have been severely damaged or destroyed in 1998.

This illustration of avoided damages emphasizes a very important point for hazard mitigation planning: the biggest benefits come from acquiring structures at highest risk--that is, buildings which are deepest in the floodplain.



Geneva County,
Alabama



Quick Facts

Sector:

Public

Cost:

\$672,558.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Buyouts Cancel Complaints Cobb County, Georgia

Cobb County, GA - Every time it rained more than 2 inches, Bill Higgins' phone would ring. "My basement's flooding again! Can't you do something to help?" Unfortunately, as a water engineer for Cobb County, there wasn't much Higgins could do to help anguished residents of Leasa Court and Cynthia Court, whose homes were built in the floodplains. "All we could do was explain to them that their house was built before 1988, before our current floodplain ordinance," Higgins said.

This year, when Hurricane Ivan dumped more than 5 inches of rain on Cobb County, Higgins' phone remained quiet. "It was a relief not to get called by those folks again," he said. What made Hurricane Ivan's heavy rain different? "Last year, we bought out 19 houses on Leasa Court and four houses on Cynthia Court, eliminating residential damage in the most severe of the chronic flooding areas in this part of the county," Higgins said. Buying out these homes proved to be the most cost-effective solution to Cobb County's continual flooding problems. Two FEMA programs helped make it possible for the County to buy the properties on Leasa Court - the Flood Mitigation Assistance (FMA) program and the Hazard Mitigation Grant Program (HMGP). Staff from the Georgia Emergency Management Agency (GEMA) worked closely with Cobb County on grant application development, review, and in recommending them for FEMA funding.

"People who had lived on those properties for a long time were very glad to have the opportunity to get out," Higgins said. "They knew they weren't going to get anything out of the house. Many of them had sustained a lot of damage, and they would have to disclose it when they sold."

From the county's perspective, buying the properties was more cost effective than other measures. For the properties on Leasa and Cynthia Courts, Higgins said, "we could have carried out a capital improvement project in that area, but the cost of such a project would have been at least twice the cost of buying the homes outright."

In addition to the cost savings," he added, "It's nice to be able to regain the storage capacity of the floodplain again. There's also the benefit of re-establishing the natural vegetation and the filtering abilities of the vegetation."

Cobb County is known for being one of the more progressive counties in metro Atlanta in regard to floodplain management, and Bill Higgins is part of the reason. Higgins spearheaded several flood mitigation initiatives - and has been enthusiastically backed by the director of the Cobb County Water System, Cobb County Manager and Cobb County Board of Commissioners.

"Floodplain buyout, I think, makes a lot of sense," Higgins said. "It restores the floodplain's storage capacity, the natural flood-mitigation quality that the floodplain has."

Higgins' long-term goal is to mitigate all the major floodplains in Cobb County, thus eliminating or reducing property damage due to floods and flood-related litigation.



Cobb County, Georgia



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

City of Belleville Acquisition

Belleville, IL - The City of Belleville is located across the Mississippi River from St. Louis, Missouri. The City experiences repetitive flooding along Richland Creek in various locations identified as 100-year floodplain. Most recently, the 1996 flood was the worst the City has encountered in 15 years and prompted the implementation of the acquisition program.

The City received funding to acquire 36 properties, including 19 residences, two commercial properties, and 15 vacant lots. The acquisition project involved demolishing the acquired structures and clearing the land to open space. The properties acquired will be retained by the City for open space and to be included in the Richland Creek Greenway Project.

Prior to the 1996 flood, the City had been working on a Greenway Project to mitigate damages in the flood-prone area. The Richland Creek Greenway Master Plan called for the City to acquire various properties along the entire length of Richland Creek within the City. The Greenway would eliminate properties from the threat of flooding and provide the City with a link to several public parks developed along Richland Creek in the recent past. The Greenway Project was initiated through a public/private effort and was recognized in 1995 as a model public/private partnership project by the East-West Gateway Coordination Council.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Saint Clair County,
Illinois**



Quick Facts

Sector:

Public

Cost:

\$1,177,220.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

City of Darlington Honored Acquisition and Floodproofing

Darlington, WI - The City of Darlington is a small community located in southwestern Wisconsin along the Pecatonica River. When the City was flooded in the Great Flood of 1993, community leaders decided enough was enough. After experiencing flooding in 1950, 1959, 1969, and 1990, City officials, residents, and business owners decided they could no longer sit by and let nature decide the future of their community. As the Mayor stated, "The preservation of the past is an investment in our future."

The City developed a comprehensive flood-hazard mitigation plan that detailed a downtown rehabilitation and flood mitigation project. The ongoing multi-year project combines historic rehabilitation with innovative floodproofing techniques. Instead of moving the downtown district, the project included in-place floodproofing and rehabilitation of buildings listed on the National Register of Historic Places, as well as acquisition and relocation of some non-historic buildings and business revitalization.

The project included floodproofing 35 buildings in the downtown area, many of which were classified as historic structures. The plan also called for relocating 15 businesses from the downtown area and developing an alternative site for business operation on a 35-acre parcel south of Darlington. The business owners covered the costs for rehabilitation and historic preservation of the buildings. The local banks had a \$600,000 fund to provide low-interest loans to the business owners for the costs they incurred. Federal funding covered the flood mitigation aspect of the project.

As of Nov. 1, 1998, 11 buildings have been acquired and demolished, and 16 buildings have been floodproofed. The acquired properties have been converted into open, recreational space.

The Darlington project is a prime example of what can be achieved by long-term planning and the cooperation of City officials, local business owners, and concerned residents. The project was a cooperative effort among many agencies including FEMA; Wisconsin Emergency Management; State Historical Society; Wisconsin Departments of Natural Resources, Administration, and Commerce; Economic Development Administration; and Southeast Wisconsin Regional Planning Commission.

The City was honored with a State Historical Society of Wisconsin Historic Preservation Achievement Award on May 9, 1998. The architectural and engineering firm hired for the project received a State award for special categories through the Association of Building Contractors.



Lafayette County, Wisconsin



Quick Facts

Sector:

Public

Cost:

\$4,706,531.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

City of Eau Claire Acquisition

Eau Claire, WI - Historically flooding from the Chippewa River took its toll on residents of the Forest Street neighborhood in the City of Eau Claire, Wisconsin. Starting in 1993, the city began to turn the tide on damages created by repetitive flooding when it implemented an acquisition program supported by FEMA's Hazard Mitigation Grant Program.

From the devastation of flooding has grown a planned revitalization of downtown Eau Claire. The west central Wisconsin city is changing its vulnerability to flooding into a recreational and aesthetic amenity that is spurring downtown economic growth.

History is repeating itself in Eau Claire. The Eau Claire and Chippewa rivers first brought settlers to the area. Here, loggers capitalized on the bounty of the woods. The growing city on the river served as an economic center during the logging decades of the 1850s to 1880s. When that 'boom era' passed, the city rebuilt as an industrial and medical center for the surrounding agricultural industry. The city is in another phase of rebuilding its downtown, this time after the shopping malls and freeway corridors influenced the development of retail centers on the outskirts of town. The Chippewa River, now bordered with newly opened up green space, is once again bringing commerce to downtown Eau Claire.

Nearly every spring, houses in the Forest Street neighborhood on the northern edge of downtown and near the Chippewa River filled with floodwaters. The 100-year-old houses were deteriorating from successive flooding and age.

The third highest flood of record hit the city in 1993. People nicknamed it the 'Great Flood'. Homes in the Forest Street neighborhood were among the 75 structures in the city that had river water in the basements. The estimated cost to the city in damages and flood fighting was \$750,000.

The federal disaster declaration of 1993 triggered FEMA's Hazard Mitigation Grant Program (HMGP). Armed with HMGP funds, city officials acquired 50 properties in the five-block Forest Street neighborhood. "Although other areas of the city also incurred flooding, the city chose these homes to acquire because of the 100-percent participation by property owners in a concentrated area," said Donna Meier, Project and Acquisitions Coordinator for the city's Department of Finance. "Every year these homes were flooded. It was very destructive. People saw that they were much better off getting out of there and everyone agreed to sell."

In the summer of 2001, the City of Eau Claire approved ambitious plans for the space left vacant by the demolition of flood-prone homes and rental units. The 13.5-acre green space would be linked to another nearby redevelopment area along the river to form a riverfront park. The Redevelopment Plan introduction states, "The open space is readily accessible to downtown businesses, the government center, the University of Wisconsin campus and surrounding neighborhoods. The riverside edges of the site offer excellent views, water access, and an attractive urban destination in the heart of the city."

The buy-out of homes and resulting vacant acreage prompted the development of the park plan.



Eau Claire County, Wisconsin



Quick Facts

Sector:

Public

Cost:

\$2,557,143.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Technical Assistance Program (HMTAP)



FEMA

City of Moorhead Acquisition

Moorhead, MN - Located in northwestern Minnesota, the City of Moorhead lies along the Red River of the North and experiences repetitive flooding. In 1993, the City experienced its fifth damaging flood in the past 20 years, damaging several homes. Four years later, the City experienced record flooding in April of 1997 that substantially damaged 16 homes. The majority of these homes were located in the River Oaks subdivision on an inside bend of the river, making the homes especially flood prone.

In the 1993 flood, there were 15 homes damaged significantly, and the City acquired eight of them in the following year. The remaining homeowners chose to stay and fight future floods on their own. In 1997 those remaining homeowners fought the unrelenting flood and received substantial damage to their homes. At that time, 16 homeowners—a combination of newly and previously flooded homes—voluntarily agreed to have their homes acquired by the City.

The 1993 acquisition project had only a partial local match, which meant that the homeowners had to provide 10 percent of the local match. The homes acquired were relatively high in value, and yet the homeowners realized the importance of flood mitigation to protect their homes. When the properties flooded again in 1997, the record flood would have caused extensive damage, as had occurred to the 16 homes acquired after the 1997 flood.

The 1993 acquisition saved thousands of flood insurance claim dollars and taxpayer's disaster assistance funding in 1997. The City of Moorhead has since acquired several more properties. The properties are now cleared, and the land remains as open space within the City's park system.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Clay County,
Minnesota



Quick Facts

Sector:

Public

Cost:

\$1,120,719.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

City of Ottawa Acquisition Project

Ottawa, IL - Located 80 miles southwest of Chicago along the Illinois and Fox Rivers, the biannual flooding of one particular floodplain area of Ottawa typically lasts three days with outside water depths anywhere from 1 to 6 feet. Although many of the occurrences may have been considered "nuisance" flooding, people living in this "flats" neighborhood had faced evacuation of their homes every few years.

But following unusually heavy mid-July rains in 1996, the City of Ottawa was among those included in a Federal disaster declaration covering 11 counties in northeast Illinois. Coordinated by the Illinois Emergency Management Agency (IEMA) and FEMA, this declaration brought relief to families through FEMA's Individual Assistance program and U.S. Small Business Administration loans. Through FEMA's Public Assistance program, the declaration helped Ottawa and other municipalities recoup response, cleanup and repair costs. The City estimated that its direct costs exceeded \$105,000 for a single flood and did not account for commercial and personal losses.

Over the years, the owners of 33 properties with National Flood Insurance Program (NFIP) coverage each filed multiple claims. Many of these properties were located in the Flats, and their multiple claim distinction identified them as repetitive loss properties in this community of 18,000. With a high number of repetitive loss properties and substantial damage resulting from the 1996 flooding, Ottawa had the attention of FEMA's NFIP staff and the State NFIP Coordinator within the Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR). Under the City's floodplain ordinance, owners of substantially damaged buildings were already being required to elevate their homes or businesses, but many of these owners could not afford to meet the ordinance requirement.

When the City learned that the Hazard Mitigation Grant Program (HMGP) acquisition, or "buyout" funding, would be available as a result of the disaster declaration, Ottawa officials jumped at the chance to become part of an ongoing effort of FEMA and IEMA to acquire flood prone properties at pre-disaster, fair market value, from willing sellers, with FEMA paying up to 75 percent of the project cost. As the City had committed to providing 5 percent of the funding, the final 20 percent would need to be absorbed by qualifying property owners. Factoring in basic transfer costs, the participants would be getting less than 80 cents on the dollar for their properties.

In total, the City acquired parcels from 36 different property owners and demolished over 65 structures including single-family homes, duplexes, garages, out-buildings, and commercial buildings.

The Flats area is now the pride of Ottawa. The newly established "Fox River Park" has open play areas and public space for picnicking and fishing, not to mention boat docks and a river walk.

Thinking of it as a "recycling opportunity," the City used some of the buildings as training sites for fire, arson, and drug enforcement investigations before demolition. These training events served multiple local communities, as well as State police and fire agencies.



La Salle County,
Illinois



Quick Facts

- Sector:
Public
- Cost:
\$3,300,000.00 (Estimated)
- Primary Activity/Project:
Acquisition/Buyouts
- Primary Funding:
Local Sources



FEMA

City of Peoria and Peoria County Acquisitions and Relocations

City of Peoria and Peoria County, IL - Acquisition and relocation of frequently flood-damaged buildings have been taking place in the City of Peoria and unincorporated Peoria County for nearly 15 years. Beginning with FEMA's Section 1362 floodprone property acquisition program in 1982 and continuing through today's Hazard Mitigation Grant Program (HMGP), the City, County, and Park District have acquired, relocated, and demolished dozens of structures and restored an open floodplain along a 25 mile reach of the Illinois River.

The City and County have obtained Illinois Department of Natural Resources (DNR) funding to continue to acquire floodprone properties. All the properties have since been cleared into open space, and residents have relocated to flood-free locations. The County also participates in the Community Rating System (CRS) and has used the acquisition projects to reduce their CRS rating, which lowers flood insurance premiums for County residents.

Record floods occurred in 1979, 1982, 1985, and 1995. The success of the program is obvious when the damages for the 1985 and 1995 floods are compared. Although the 1995 flood crested 1.4 feet higher than the 1985 flood, very little damage occurred, and flood insurance claims were reduced by almost 90 percent. Taxpayers saved millions of dollars in relief costs, and the benefits are continuing. Removing the exposure to flood damage pays real benefits. The jurisdictions have continued these ongoing efforts by applying for \$1.3 million in HMGP funding and \$383,000 in Flood Mitigation Assistance Program funding, which will be matched by State agencies.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Peoria County,
Illinois



Quick Facts

Sector:

Public

Cost:

\$4,700,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

City of Scranton Nay Aug Avenue Acquisition

Scranton, PA - In January 1996, Nay Aug Avenue experienced its second major flood in 11 years. The 13 homes along the avenue were built prior to 1940 with no footers for the foundation to rest on. Additionally, the foundation walls were of stone and crumbling mortar. Through the years of flooding, the banks of the Lackawanna River washed away to the point that the houses are sitting in the floodway.

The project consisted of the acquisition and demolition of the 13 properties. Various city agencies assisted in the implementation of the project.

This project did highlight cooperation of a City working to help its citizens. For example, a shortfall in funding was identified as the project progressed. So the City held an auction at the properties. Everything from the kitchen sink to the mailboxes in the front yard was sold. Citizens from around the community (including several that opposed the acquisition) came to help. The auction raised \$40,000 to aid the project. This auction and other creative means of dealing with the project lead to the project having an \$11,000 excess when it was completed. This money was returned to the Hazard Mitigation Grant Program (HMGP) fund.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.

Since the completion of this project, the area has been flooded four times, and subsequently the Army Corp is constructing a levee to further reduce the area of flooding. Future flooding may also be avoided by increasing the currently inadequate capacity of the storm water pipes in the area.



Lackawanna County,
Pennsylvania



Quick Facts

Sector:

Public

Cost:

\$907,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

City of Washington Voluntary Buy-Outs

Washington, MO- Flooding in the summer of 1993 uprooted thousands of people and destroyed or damaged their property. People and animals were caught in raging waters, causing many deaths. The high water damaged millions of acres of agricultural land, devastated towns and businesses, cut off water supplies, and knocked out roads, bridges and railways. Since then, the State of Missouri has taken steps to remove people from harm's way. The State has currently acquired nearly 5,000 homes through voluntary buy-outs administered by the State and FEMA's Hazard Mitigation Grant Program (HMGP).

Since the 1993 floods, the State of Missouri continued to experience flooding in several different parts of the State. On May 7, 2000, in Jefferson and Franklin Counties, over a foot of rain fell in the early morning hours, suddenly transforming normally quiet little creeks into walls of raging torrents of water, carrying off cars and mobile homes, killing two people and swamping many homes in several communities and rural areas. The part of the Missouri River that caused most of the damage in 1993 had lower than normal levels for the most part. This time it was the small creeks and rivers that caused so many problems for the sleeping residents of these two Counties.

In 1993, among the numerous buy-outs that were funded and administered by FEMA and the State of Missouri, funding was approved for a buy-out project in the City of Washington. The City of Washington considered elevation and the construction of a protective levee, but the final decision, made by a consensus of the local residents and the community leaders, was to buy-out the property owners and deed restrict the land so that no further development would occur. The project was forwarded to the State and FEMA and consisted of the voluntary acquisition of five residential structures.

This project has been a great success for the City of Washington. When flooding began again in May of 2000, none of the homes that once stood in the buy-out area were affected. Costs of warning, rescue, and evacuation were avoided. Building repairs and personal property losses were far less costly. Homeowners, once terrified by the rising waters, may not have even heard about the problems until they listened to the news broadcast the next morning. The area is now a neighborhood park with basketball, tennis courts, and a playground for children.

The total cost for this project was \$508,503. According to the City, all of the homes involved in the buy-out would have received a substantial amount of flooding had they remained. After only 7 years, the project benefited tax payers by saving more than \$1.1 million in disaster assistance, warning, rescue and evacuation. The most important benefit, however, is the removal of people from harm's way.



Franklin County,
Missouri



Quick Facts

Sector:

Public

Cost:

\$505,503.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

East Grand Forks Accelerated Acquisition Program

East Grand Forks, MN - The City of East Grand Forks is located in northwestern Minnesota along the Red River of the North. As a result of heavy snowfall during the winter and quick snowmelt in the spring, the Red River valley experienced a record flood in April of 1997. The City of East Grand Forks was flooded almost in its entirety, with only 1 percent of the buildings being spared any damage. The northern location of the town, in northwestern Minnesota, allows only a short building season. Therefore, an accelerated acquisition program was needed to enable flood survivors an opportunity to rebuild before the next winter.

With cooperation among FEMA, the State Division of Emergency Management, and the Governor's appointed "Minnesota Recovers" Task Force, the City of East Grand Forks received project approval to acquire 407 properties within 75 days after the disaster declaration. This allowed the City to make its first buyout offer on August 4, 1997.

All properties acquired under the accelerated program were substantially damaged residences in the 100-year floodplain. The acquired properties will become open space and eliminate the risk of flooding for more than 400 families. In addition to the 407 initial properties acquired, the City has received additional FEMA and State funding to acquire 100 rental properties for an additional \$5 million. By the end of 1998, the additional 100 properties were acquired.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Polk County,
Minnesota**



Quick Facts

Sector:

Public

Cost:

\$15,000,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Evansville Acquisition Village Implements Mitigation Measures

Evansville, IL - The village is a small community in southwestern Illinois along the Kaskaskia River, about 10 miles from its confluence with the Mississippi River. In the Great Flood of 1993, the village experienced record flooding as the Mississippi River floodwaters backed up the Kaskaskia River. Homes and businesses were inundated with more than ten feet of water, causing severe damage to over 20 structures.

The Village of Evansville utilized the Hazard Mitigation Grant Program (HMGP) to acquire the substantially damaged structures. Funds from the Illinois Department of Commerce and Community Affairs and U.S. Economic Development Administration were used to relocate the Water Treatment Plant away from the threat of flooding. The village acquired 12 properties, including residences and businesses. The properties are now all dedicated to open space and are planned to be used for recreation purposes to promote tourism in the village.

The village also developed a Hazard Mitigation Plan to address all hazards within the village, including earthquake since the village is within the New Madrid seismic zone. An ordinance implementing BOCA building codes was adopted to encourage earthquake-resistant construction.

The village has successfully removed many of its residences away from the threat of flooding. Evansville has received recognition across the Nation for its successful implementation of mitigation measures in a small community.



**Randolph County,
Illinois**



Quick Facts

Sector:

Public

Cost:

\$296,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Excelsior Springs Acquisition Green Space Brings Wildlife

Excelsior Springs, MO - The charming, late Victorian-era Town is renowned for its remarkable varieties of mineral waters. The Town is located in the northeast portion of Missouri along the Fishing River, about 30 miles northeast of Kansas City. Floods and flash floods have devastated Excelsior Springs many times. In 1993 severe flash floods devastated the town causing extensive damage. Residents were evacuated. Streets were closed. Homes were destroyed. Cars, furniture, appliances all were swept away. Every public building was flooded.

With financial support from FEMA's Hazard Mitigation Grant Program (HMGP) and the Housing and Urban Development (HUD) Community Development Block Grants program, Excelsior Springs has taken measures to mitigate against future costly floods. The Town applied for and received \$1.3 million to buy homes from those who wanted to move out of harm's way. Using these mitigation funds from FEMA and HUD, the Town purchased 61 residential properties. Structures were cleared from the floodplain and green space remains. Wildlife has been sighted in places where it didn't reside before.

This project has been a great success for the Town of Excelsior Springs. In 1998, the Town experienced three floods, but they did not impact the community as they had in the past. Very little damage occurred. Costs of warning, rescue, and evacuation were avoided. Building repairs and personal property losses were far less costly. Cleanup is easier and faster when it's just mud and not automobiles or furniture.

All 61 structures that were removed from the floodplain would have been flooded and extensively damaged during the most recent flooding in October 1998. Above all else, the residents of Excelsior Springs are safer now.



**Clark County,
Missouri**



Quick Facts

Sector:

Public

Cost:

\$1,300,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Flooded Homes To Farmers Market A Bluefield Success Story

Bluefield, VA - Bluefield wasn't always known by that name. Eighty years after its third change, Bluefield is undergoing more changes. "Two creeks collide in the middle of town," according to Todd Day, Public Works Director for the City of Bluefield, Virginia. "Beaver Pond and Whitney Branch meet under the IGA store. When torrential downpours happen, the whole town floods." From 2001 to 2003 the area has experienced four floods that impacted Walnut Street, home to seven longtime residents of this town of just over 5,000.

As a result of a flood that hit in 2001, Bluefield was awarded funds from the Hazard Mitigation Grant Program (HMGP) to buyout and subsequently relocate the seven families on Walnut Street. "Removing the buildings won't stop the flooding," Day said. But the trauma associated with frequent flooding and the damage it caused has come to an end. "The residents of those homes were concerned about finding suitable housing," Day stated. A valid concern considering many of the residents were senior citizens. "The residents of Walnut Street have been relocated inside the city limits, and I believe they are reasonably happy with their homes," Day added.

Road repairs and maintenance were a costly factor for the city, too. "We were patching and paving and building back that road over and over again. We figured out that had we not become involved with the HMGP, it would have cost the city more than \$65,000 for repairs and maintenance over the next five years. That will be a huge savings for Bluefield," said Day. "When Walnut Street flooded, we were going down there in power boats, with the rescue squad and fire department and all other types of emergency services regularly."

Bluefield Mayor Bill King said the Walnut Street flooding occurred even when there was only a moderate amount of rain. Consideration was given to elevating the homes, but in the final analysis the houses were considered too old to elevate successfully.

Day said that a group of citizens has formed a committee to consider possible uses for the "green space" created after the homes were vacated and demolished. The committee is considering using that space for an unpaved parking lot or a cordoned-off park area with benches. "The committee is still forming, but so far, favor seems to be on the side of forming a farmers market there," Day said. "That would be good for Bluefield."



Tazewell County,
Virginia



Quick Facts

Sector:

Public

Cost:

\$409,522.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

From Floodway to Greenway Warner Robins, Georgia

Warner Robins, GA - Originally named Wellston, Warner Robins changed its name to match that of the military base that was founded near the town in the early 1940s, becoming Warner Robins Air Force Base.

In 1994, Tropical Storm Alberto caused the usually dry Bay Gall Creek to overflow and flood numerous properties in central Georgia. Today, the formerly flooded property is the beginning of Wellston Trail, a multi-use greenway through a wooded region in what otherwise is a busy part of town known more for its strip malls and traffic jams than for tranquil parkland. This change, however, didn't happen overnight. As Walter Gray, Warner Robins city engineer puts it, "Within a week of that flood, we had people starting to repair their houses, and we had to go out and ask them to stop."

"As a participating community in the National Flood Insurance Program, Gray said, "the city was required to have property owners elevate their homes that were flooded and declared substantially damaged before any other repairs could be made. So during that first week, we were busy posting notices on all the damaged buildings we could find to let their owners know about the requirement to elevate before beginning any repairs."

At that time, Gray explained, a predecessor of FEMA current Flood Mitigation Assistance (FMA) program was a program known as the "1362 program." It involved Federal funding through the National Flood Insurance Act's Section 1362; this pro-gram made it possible for the city to buyout the properties of people who had flood insurance.

"The city bought about 13 houses with the 1362 money," Gray said. "But the 1362 program didn't help the people who didn't have flood insurance. So the city got back with FEMA and found out it would soon have the Hazard Mitigation Grant Program (HMGP) that would fund 75 percent of the cost of buying out the remaining properties. The city also applied to the U.S. Department of Housing and Urban Development for funds to cover the remaining 25 percent. With these Federal funds, we were able to buy out the remaining 25 properties, 22 of which were occupied houses."

It took approximately 8 years to buy out all of the properties, Gray said, "Some of them went real quick. But we didn't finish buying the last one until about two years ago because of a disagreement regarding the price. Since then, we've owned all of the properties and have used State of Georgia green space monies to create park areas and trails on it.

"So, in addition to having green space here in the middle of town, we no longer have to come down here in boats to rescue people stranded in their houses. To me, it's the most effective thing we can invest our dollars in. I would buy out the houses in a heart-beat before I'd make major improve-ments to this channel. Let Mother Nature do what she does best."

The greenway that begins where flooded houses once stood is a new reality made possible by funds from FEMA's Flood Mitigation Assistance program and the foresight and persis-tence of Mayor Donald S. Walker, the council members, other city officials, and volunteers engaged in both the buyout program and the design and implementation of the Wellston Trail.



Houston County,
Georgia



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Geneva: Buy Outs and Acquisitions Keeping Residents Dry

Geneva, AL - Geneva has a long history of flooding. In 1861, the town was destroyed by a flood and relocated to higher ground. Since the start of the 20th century, Geneva has been flooded four times. Three of those events occurred during the 1990s. Although not all residents of Geneva were hit hard by each flood, the small residential area of Baptist Bottoms has always received the brunt of the damage. According to the Geneva City Clerk, "With the exception of what they could carry out during the evacuation, they [Baptist Bottoms residents] lost everything in the [1990 and 1994] floods."

To stem the cycle of disasters, Geneva applied for hazard mitigation grant funds to acquire structures most at risk. FEMA agreed to fund the buyout of dozens of buildings within the floodway of Double Bridges Creek in Baptist Bottoms. Local officials began an aggressive campaign to convince homeowners in the flood-prone Baptist Bottoms area to sell their homes and relocate out of the floodplain. Eventually, they submitted a grant application to FEMA for the acquisition of 54 homes. An initial benefit-cost analysis determined that the project would be cost-effective. All of the structures are located deep in the floodplain, and it was clear that damages from repeated flooding in the future would take a heavy toll on the community.

Of the original 54 structures included in the application, 30 were actually acquired and removed before the March 1998 flood. A revised and updated benefit-cost analysis for this group found that the acquisition was even more cost-effective than initially projected.



Geneva County,
Alabama



Quick Facts

Sector:

Public

Cost:

\$672,555.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

George's Creek Acquisition Project Lessening Hazards to Life and Property

Allegany County, MD - Allegany County lies within the Potomac River Basin; historically it has experienced devastation of property and loss of life due to swift flowing high water. The total land area of Allegany County that is located in the 100-year floodplain roughly equals the National average (about 10%). Unfortunately the population is concentrated in the narrow river valleys where the flood hazard is greatest.

Flooding as a result of flash flood events come from intense regional summer thunderstorms or long spring rains on the melting snow pack, causing extended periods of high water. The flooding from the aftermath of the January 1996 blizzard, and subsequent damage from Tropical Storm Fran (1996) left substantial damaged to eight residences.

This project represents the first stage of a three-part project aimed at lessening the hazard to life and property in the George's Creek Basin. The project will acquire and demolish the substantially damaged structures and the grade the land. The property will then be dedicated to open space in perpetuity and access for recreational use provided. Stages II and III of the project will involve elevations and retrofitting.

This project permanently removes these families' homes from the floodplain and prevents future construction in this area. Damages related to these properties from the two major events in 1996 (including property repairs, loss of services, and loss of rental income) are estimated at \$160,000. This acquisition removes these repetitive loss properties from the National Flood Insurance Program (NFIP) rolls and the need for future Federal disaster aid.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Allegany County,
Maryland**



Quick Facts

Sector:

Public

Cost:

\$201,750.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Giving the Creek A Little More Room Lexington, KY, Acquisition

Lexington, KY - Residents of the Valley subdivision in Lexington are no strangers to flooding. Behind their homes meanders the quiet Wild Cat Creek, offering a pleasant view from the backyards of the homes on either side. However, every few years the creek lives up to its name, dumping 1 to 5 feet of swirling water in homes and basements.

In 1989, Wild Cat Creek roared over its banks damaging 16 homes, evacuating 58 people and causing \$195,000 in damage. Flooding in 1992 caused \$346,000 in damages, and for four houses, structural costs reached mostly \$80,000. In 1997, the flooding came so fast evacuations were not possible. It caused about \$93,000 in damages and several residents were treated for hepatitis after clean-up efforts. In 1998, the flooding struck again, damaging 16 homes.

Flooding damage was often severe because the houses were built in a mapped floodway. Each structure contained a basement that faced the creek, housing a utility room with a washer, dryer, hot water heater and furnace. As floodwaters entered, appliances and utility connections were damaged or ruined entirely. Sometimes homes lost retaining walls.

The rising creek flooded neighborhood streets and run-off from higher elevations across the street would add to the mess. The city of Lexington's costs skyrocketed as they paid numerous times for debris clean up, garbage pick up, repaired drains, and evacuations.

Working in cooperation, the Commonwealth of Kentucky and the Lexington-Fayette Urban County Government (LFUCG) requested Hazard Mitigation Grant Program (HMGP) funding, and were approved for 16 homes to be acquired and demolished through the voluntary acquisition program. On the other side of the Wild Cat Creek, approximately 12 to 14 homes were bought out through LFUCG funding alone. The land was cleared and converted into a greenway corridor, providing linkage to a dedicated park system as well as stormwater management. The land remains as open space and provide a natural drainage area for future high water.

With the changes in place, Wild Cat Creek now flows along its natural course. If it floods, the severity of damages or losses is greatly reduced. The open area, where the houses once stood, now allows the creek space to naturally pool past its banks and flood mostly open space. When the creek waters reach any of the remaining houses near the creek, the runoff intensity is greatly reduced.

Now the City of Lexington is saving money and manpower. The Wild Cat Creek is tamed and the community has a lovely open space park to enjoy. "Cooperation of the Federal, State and local officials made this vital project happen." said Kentucky Governor Ernie Fletcher. "This important funding will allow families to escape the flooding fears that come with every spring and summer thunderstorm."



**Fayette County,
Kentucky**



Quick Facts

Sector:

Public

Cost:

Amount Not Available

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

The Town of Glasgow Housing Relocation and Floodproofing

Glasgow, VA - The Town of Glasgow is located at the confluence of Virginia's Maury and James Rivers and at the base of steep mountain slopes. Flash flooding and river flooding occurs when hurricanes and storm systems stall against the mountains. In the past thirty years, the Town has been hit by six major flood events. More than 50 percent of the Town lies in the floodplain.

The Town will relocate, elevate, and acquire approximately 56 houses. By April 1999, the project had relocated three houses, elevated two and acquired eight. As of June, 2000, the project has elevated 11 houses, relocated eight houses, and acquired 16 houses. During the summer of 1999, two more houses were be elevated.

Through the use of these three mitigation options, the Town intends to move people out of harm's way and prevent property damage. Land acquired by the Town will be held as open space.



Rockbridge County,
Virginia



Quick Facts

Sector:

Public

Cost:

\$1,930,968.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Grafton Acquisition Benefiting Residents and Tourists

Grafton, IL - The City of Grafton, a small tourist-based community in west central Illinois, is located at the confluence of the Illinois and Mississippi Rivers and just north of the Mississippi and Missouri Rivers' confluence. The location of the City makes it extremely flood-prone. Prior to the Great Flood of 1993, the City had experienced repetitive flooding but not to the same degree. The 1993 flood inundated almost the entire City for months. It caused substantial damage to over 100 homes.

The City opted to utilize the Hazard Mitigation Grant Program (HMGP) to acquire substantially damaged structures and end the cycle of flood-rebuild-flood. With matching funds provided by the Illinois Department of Commerce and Community Affairs (DCCA), the City implemented an acquisition project to acquire 100 properties, many of them located in the floodway of the rivers. The acquisition project moved relatively quickly, and within 2 years the City had acquired and demolished most of the properties. The properties are all dedicated to open space, which provides an unobstructed, scenic view of the rivers.

The success of the program was obvious in 1995 when the City experienced flooding at the 100-year level. In previous years, that degree of flooding would have caused extensive damage; but after the 1995 flood, the City continued to function as if the flood was non-existent. There was almost no damage to homes, and flood insurance claims were drastically reduced. The benefits of an open floodplain are clearly evident in a City that has flooding on an almost annual basis.

Since 1993, the City has experienced flooding in 1995, 1996, and 1998 with no significant damage in any of those events. The reuse of the acquired land is beneficial to the City. With its strong tourism base, the City is using some of the acquired property to connect a bicycle trail that begins at Pere Marquette State Park, just to the north of the City, and ends at the City of Alton, to the south.



**Jersey County,
Illinois**



Quick Facts

Sector:

Public

Cost:

\$4,735,832.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Gulf Shores Public Beach Acquisitions Prevents Further Losses

Baldwin County, AL - Gulf Shores is a coastal area that has experienced flood inundation, erosion, and hurricane hazards. Hurricanes pose a great risk to development along the coast and endanger lives and property with high winds, wave action, and flooding. In 1980, following Hurricane Frederick, several large prime oceanfront lots in the City of Gulf Shores were purchased with Federal funds under the National Flood Insurance Program (NFIP) former Section 1362 Property Acquisition Program.

Under the Property Acquisition Program, FEMA could purchase flood-damaged properties and provide owners with the opportunity to relocate. The community had to accept title to the property and manage it for open space purposes. The property acquired under Section 1362 was previously occupied by commercial establishments. It is currently being used as open space for a public beach.

In 1998, Gulf Shores was subjected to coastal surge and flooding during Hurricane Georges. The absence of businesses along the immediate shoreline in this area resulted in a significant avoidance of damages and the resulting economic losses. The relocation of properties out of this area not only will prevent further suffering and personal losses, but will also reduce future costs for responding to and recovering from flood disasters.



**Baldwin County,
Alabama**



Quick Facts

Sector:

Public

Cost:

\$1,068,400.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

National Flood Insurance Program (NFIP)



FEMA

Kinston-Lenoir Floodplain Repetitive Flooding Leads to Planning

Kinston, NC - Approximately 75 percent of the homes in Kinston-Lenoir County's floodplain have experienced repeated flooding following Hurricanes Fran (1996), Dennis (1999), and Floyd (1999). Many of these homes sustained substantial damage. The community was devastated, both physically and economically.

The City of Kinston and Lenoir County made a commitment to proactively reduce flood risks by integrating floodplain management planning into their community development efforts. Using Geographical Information Systems (GIS), local officials developed databases and tracking functions to more effectively coordinate floodplain management and community development. Officials use the GIS tools to predict the impacts of various disaster scenarios, identify vulnerable structures, and track the progress of property acquisitions.

The project also provides useful information to facilitate disaster response and recovery. Through the Hazard Mitigation Grant Program (HMGP) and State support, more than 1,000 properties in the floodplain have already been acquired by the City and County. There are still plans to purchase approximately 225 more. The residents who were relocated were allowed to move as neighborhoods in order to preserve their social networks, school districts, and overall community spirit.

Ninety-seven percent of the homeowners whose properties have been purchased have elected to stay in Kinston. This effort resulted in a minimal disruption to the community's tax base. In addition, new partnerships have been built. A Green Infrastructure plan has been developed in the floodplain to minimize future damage and improve the quality of life. The Greenway will include historical tourist attractions, educational areas, and recreation facilities.



**Lenoir County,
North Carolina**



Quick Facts

Sector:

Public

Cost:

\$40,000,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

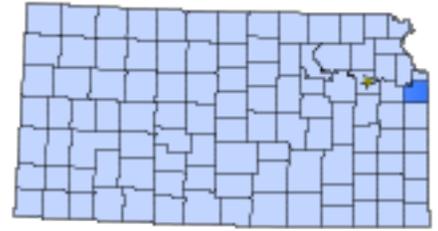
Johnson County Acquisition Removing Families From Harm

Merriam, KS - Located in Eastern Kansas, just south of Kansas City, Johnson County is one of the more populated counties in the State and has flooding and flash flooding problems from Turkey Creek, Indian Creek, Rock Creek, and Brush Creek. The county has been actively working to alleviate the dangers associated with flooding and to provide protection for their citizens and reduce property losses. Johnson County applied for grant funds to assist the City of Merriam in removing families from the 100-year floodplain.

The City of Merriam has experienced serious flooding from Turkey Creek in 1914, 1935, 1958, 1961, 1977, 1983, and 1993. In 1977 the damages that occurred along Turkey Creek totaled \$8.3 million. During the July 10, 1993, flooding event up to 10 inches of rain fell over the Metropolitan area. Overall damages to residences and businesses in the Merriam area was \$3.3 million.

Johnson County received funding from FEMA's Hazard Mitigation Grant Program (HMGP) and the Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) program to acquire four residential structures and one vacant lot. The county transferred the acquired properties along Turkey Creek to the City of Merriam. All of the structures were demolished and cleared; the land was returned to open space.

This project has been quite an achievement for Johnson County and the City of Merriam by removing families from harm's way. During the most recent flooding event in 1998, the acquired structures would have been inundated by an average of 4 to 6 feet of water and sustained an estimated \$110,500 in structural damages. This does not include the financial costs of warning, rescue, evacuation, temporary housing, or loss of personal property.



**Johnson County,
Kansas**



Quick Facts

Sector:

Public

Cost:

\$352,153.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Kampsville Acquisition A Solution that Benefits Community

Kampsville, IL - As a small tourist-based community in west central Illinois, the Village of Kampsville is located about 15 miles north of the confluence of the Illinois and Mississippi rivers and is along the Meeting of the Great Rivers National Scenic Byway designated in 1999. The location of the Village, confined between the Illinois River and its forested bluffs, makes it extremely flood-prone. Prior to the Great Flood of 1993, the Village had experienced repetitive flooding, with severe damage in 1973. The 1993 flood inundated almost the entire Village for months, causing substantial damage to over a dozen buildings.

Following the 1973 flood, which was then the worst on record, the Village received a grant from FEMA and the Illinois Department of Natural Resources (then IDOT now IDNR) to acquire flood damaged structures. The Village acquired 34 structures using FEMA, IDNR, and Illinois Department of Commerce and Community Affairs funds. This initial acquisition cleared much of the repetitive flood areas in the Village by acquiring structures located in the lowest portion of the floodplain.

Following the 1993 flood, the Village utilized FEMA's Hazard Mitigation Grant Program (HMGP) to acquire damaged structures that were not acquired in the 1973 buyout. With matching funds provided by the Illinois Department of Commerce and Community Affairs, the Village acquired an additional 13 properties, now all dedicated to open space. The Village also received funding to develop a Hazard Mitigation Plan to address all hazards in the area. This plan was updated following the 1993 buyout.

The success of the buyout program was obvious during the 1993 flood: a significant reduction in damage to homes. Although several structures had flooded, the severity of the damage seen in 1973 would have been repeated and greatly intensified had there not been a buyout project implemented.

The benefits of an open floodplain were clearly evident in this Village which experiences repetitive flooding. The benefits influenced other communities and organizations as well. The mayor encouraged nearby communities to implement a buyout, saying that although it was the hardest thing, it was the best thing the Village had done. The American Red Cross was also able to direct its private contributions to other needy sources instead of the flooding damages. The reuse of the land has also been beneficial to the Village serving tourists with a campground in one area of the buyout with gravel pads and an unobstructed view of the Illinois River.



**Calhoun County,
Illinois**



Quick Facts

Sector:

Public

Cost:

\$269,325.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

La Junta Salvage Yard Acquisition to Clear the Floodplain

La Junta, CO - The City of La Junta's salvage yard had been in operation since the late 1960s and had become a blight within the community. The property was under water whenever there was high water in the Arkansas River. The owner felt that the problem was going to get worse in the future.

The City's objective for the acquisition project was to clear the floodplain of structures and/or flood proof the existing commercial structures to minimize the flood damages. The fear was that the next flood would wash debris into the properties and then into the Arkansas River Bridge downstream.

Five months after the salvage yard was cleared, a 50-year flood event occurred. The project prevented approximately \$500,000 in damages to the Arkansas River Bridge and downstream properties.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Otero County,
Colorado



Quick Facts

Sector:

Public

Cost:

\$106,591.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Lazybrook Acres Development A Community Decides on Acquisition

Wyoming County, PA - The Lazy Brook development was constructed in the late 1960s and early 1970s on farm land along the Tunkhannock Creek. The 89 homes in the development had experienced flooding seven times since 1976. In 1996, 69 of the 89 homes had water levels in their lowest floors ranging from 1 to 8 feet. These homes also experienced failure of the septic systems; contamination from fuel oil; and 8 homes were isolated by a drainage channel after losing their access bridge. Three months after the disaster, only 10 families were able to live in their homes.

On January 24, 1996, a town meeting was held to review options for the community. With a long history of flooding and the latest flooding still fresh on their minds, the residents of the community expressed a strong desire to have their homes acquired. Hazard Mitigation Grant Program (HMGP) funds, along with State and local government funds, enabled the community to relocate one home and acquire 75 homes.

The National Park Service played a key role in the coordination and development of the land-use plan for the area. The land-use plan, when implemented, returned the area to open space as a recreation area for the whole community.

Savings in avoided future damage from this project is expected to be at least \$6 million.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Wyoming County,
Pennsylvania**



Quick Facts

Sector:

Public

Cost:

\$4,757,708.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Low Interest Loans From Citizens National Bank

Tucker and Randolph Counties, WV - Tucker and Randolph Counties stretch for more than 75 miles along the northern fringe of the Allegheny Mountains in eastern West Virginia. In 1990, they had a combined population of just over 35,000 in this predominantly rural area with most settlements restricted to narrow river valleys. Thus, the primary concern in this area is flooding. Since 1967, both counties have received Presidential disaster declarations as a consequence of flooding five times.

In 1996, several events resulted in a total of \$65 million in disaster aid to the communities. Tucker and Randolph counties are pilot Project Impact communities. Citizens National Bank, with offices in Tucker and Randolph Counties, West Virginia, became a project partner in 1997. The bank president became familiar with the complexity of State, County and local regulations in the Hazard Mitigation Grant Program (HMGP) through Project Impact Steering Committee meetings.

Realizing that an inordinate amount of time was necessary to coordinate all the home buyout activities, further placing the homeowners at risk, the bank took the initiative to offer low interest bridge loans to individuals participating in the acquisition project under HMGP. The loans enabled local residents to move out of the flood area before the HMGP- and State-funded acquisition projects could be completed. Additionally, Citizens National Bank set aside \$1 million in low interest loans for flood prevention and mitigation. The bank also teamed with the Elkins Builders Supply and the Randolph County Vocational Technical Center to provide building supplies and education on retrofitting flood prone structures.

As of February 1999, the low-interest loans, totaling \$248,296, enabled six homeowners to move out of harm's way while awaiting the final deed transaction from the State to the City. In neighborhoods that have been repeatedly damaged by floods, loan officers are going door-to-door to explain their loan program. As a part of their presentation, they discuss some retrofit techniques promoted by Elkins Builders Supply. The Randolph County Vocational Technical Center has incorporated these retrofit methods into the curriculum and developed 3-D models for display in the Elkins Builders Supply.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Multiple Counties,
West Virginia



Quick Facts

Sector:

Public

Cost:

\$1,000,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Acquisition and Elevation Project in Mandeville, Louisiana

Mandeville, LA - In the City of Mandeville, approximately 80 percent of the incorporated area is within a Special Flood Hazard Area, Zone A and Zone V. In May 1995, the southeastern portion of Louisiana experienced a flood so significant that the National Flood Insurance Program estimated it to be the most expensive flood disaster for Louisiana, costing approximately \$534 million in claims paid.

The City of Mandeville itself experienced low level to deep water flooding in over 200 residential structures. One subdivision in particular, Golden Glen, had many homes substantially damaged by flood waters, several of them in Zone C. Mayor Eddie Price made a commitment to his citizens to do something about the flooding problem.

Mayor Price organized a local hazard mitigation team and developed a local hazard mitigation plan for the City, incorporating all aspects of Multi-Objective Management. Hazard mitigation alternatives were discussed among the City staff; a determination to pursue acquisition, elevation, and dry floodproofing of residential structures was then agreed upon.

The City sponsored a series of projects, using new technology to elevate concrete slab structures with the slab attached, achieving benefit cost ratios of 5:1 and greater. Local demolition contractors tore down several structures to open drainage pathways, and a local floodproofing contractor was hired to protect those structures with a history of low-level flooding.

The City has now eliminated the costs of flood damage in the subdivision of Golden Glen, as demonstrated by two subsequent floods that occurred in 1998. Structures that would have flooded are well above the base flood elevation, completely removed, or are watertight. It is estimated that this project has saved almost \$500,000 in 1998 alone!

The new elevation technology used by local contractors, the development of an effective dry floodproofing technique, and the technical expertise of local mitigation consultants have all been an excellent combination to solve many of these problems.



Saint Tammany Parish,
Louisiana



Quick Facts

Sector:

Public

Cost:

\$1,800,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Flood Mitigation Assistance (FMA)



FEMA

Acquisitions and Elevations Letting the River Flow Freely in WA

Mason County, WA - The Skokomish River valley experiences widespread flooding several times each year as heavy rains and mountain snow runoff swell the river outside of its banks.

“The Skoke,” as it is commonly called, drains nearly 250 square miles of the mountainous Olympic Peninsula into the Hood Canal region of South Puget Sound. County officials were aware of several areas in particular that suffered frequent and severe flooding, but 12 homes along East Bourgault Road incurred the most significant flood losses. Damages to homes along East Bourgault Road alone had exceeded \$300,000 in recent years.

Residents whose homes flooded at least once a year, and who often were forced to evacuate their homes 3 to 4 times each flood season, desired relief. Ten of the 12 homeowners had expressed an interest in participating in an acquisition project. So in 1991, the County applied for and was awarded Hazard Mitigation Grant Program (HMGP) funding to begin buying out some of the homes.

In December 1996, the County adopted a Comprehensive Flood Hazard Management Plan that outlined several recommendations for mitigating flood losses in the Skokomish River Valley. The success of the initial round of acquisitions along East Bourgault Road, which included six homes, created public support for more buyouts. The County applied for additional HMGP funds, and was twice awarded additional funds to acquire, and perhaps elevate where appropriate, more homes along East Bourgault Road as well as Skokomish Valley Road, the second priority area for mitigation.

Mason County was awarded a total of \$1,510,077 in HMGP (Federal share) for its non-structural mitigation effort. The remaining \$754,772 was funded by the State of Washington and through local government and private resources.

To date, the County has completed the purchase of 13 homes and approximately 75 acres of floodplain. Officials expect to fund the acquisition or elevation of at least seven more properties in 1999.

Site visits since the project was implemented have proven that it has been hugely successful. The Skoke now flows across East Bourgault Road without causing damage where homes once stood. The project as a whole is expected to save approximately \$1.50 in avoided damages for each \$1 spent.



**Mason County,
Washington**



Quick Facts

Sector:

Public

Cost:

\$2,264,849.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Millvale Borough Property Buyouts Erosion Prompts Acquisitions

Millvale Borough, PA - During a period of extremely heavy snowfall and rains in March of 1994, occupants of Millvale Borough complained of feeling movement in their homes.

Inspection showed evidence that earth movement had occurred over many years. Signs of recent earth movement in a grassy area behind one of the homes resulted in an evacuation order. Eventually, this earth movement resulted in a broken sanitary sewer line that polluted the groundwater.

The following month, additional earth movement occurred again, causing severe undermining of tree root systems in the area. It was obvious that the condition was worsening. Residents of three more properties were advised to evacuate.

The Borough of Millvale decided to acquire 12 properties, three of which had been demolished during the disaster. After purchase, the remaining nine buildings were demolished; all fill and failure materials were then removed from the site. Finally the slope was stabilized, and ground cover added to prevent a reoccurrence.

The stabilization of the slope will protect residents of the surrounding area from further erosion damage. Capping the sanitary sewer line prevents sewerage from seeping into the ground water. The cost of utilizing emergency personnel for evacuation and rescue is avoided, as well as the disruption to the lives of residents in this community.



**Allegheny County,
Pennsylvania**



Quick Facts

Sector:

Public

Cost:

\$924,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Mitigation in Action: Huntsville No More Flooding for One Small Business

Huntsville, AL - John's Photo Mart, a small camera and photo processing shop, had been beset by flooding problems for years. Located in a 100-year floodplain and surrounded by the waters of Brogan Branch, Pinhook Creek and Fagan Creek, the small brick building with the slanted roof had been flooded three times since 1979. Each time, floodwaters breached its interior one to two feet, and each time, the National Flood Insurance Program (NFIP) paid out damages to the owner/policyholder. Over the years, insurance settlements for flood damage amounted to \$24,167 or \$59,860 in inflation-adjusted 2004 dollars. It was a cycle destined to go on forever.

Seeing the devastation on this small property year after year, Huntsville city officials agreed it was a problem that needed a solution. One day in 2003, opportunity stared them in the face.

A City employee who drove by the site each day on the way to work saw a "for sale" sign and mentioned it to colleagues. The possibility of purchasing the building was then presented to the head of the planning department who instructed staff to begin the process.

Without any financial assistance from the Federal or State government, Huntsville officials did a property appraisal and offered \$125,000 in local funds for the property. On April 17, 2003, the offer was accepted and the little building belonged to the City. Less than a month later, the former photo mart flooded again, but this time it didn't matter. The proprietors had moved out, the inventory was gone, and the building was scheduled for demolition. In Oct. 2003, the building was razed.

The NFIP is no longer paying insurance settlements year after year for a property whose future was clouded with the prospect of more flood damage. The property's owner, Fuji Photo Film Ltd., was compensated at full market value. The final silver lining is this - the small 5,400 square feet patch of land where John's Photo Mart once sat is now a well-manicured green space maintained by the City of Huntsville, lending a touch of serenity to a busy commercial intersection.



**Madison County,
Alabama**



Quick Facts

Sector:

Private

Cost:

\$125,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Local Sources



FEMA

Morgan County Acquisitions Flood Buyout Project

Morgan County, WV - Residents in various Morgan County locations along the Potomac River and its tributaries have suffered repeated flood damage. These rural locations experienced major floods in November 1985 and again in January and September 1996. Most property owners had their life savings invested in these properties. They faced financial ruin since no one would buy the floodprone properties and it seemed that just when they finished re-building, a new flood would occur.

This buyout project was a joint Federal, State and local undertaking. It involved acquiring the properties and demolishing the structures. Once this is completed, the county will grade the vacant lots and then maintain them as open space in perpetuity.

Records indicate that major flood events occurred in this area in 1936, 1985, and twice in 1996. The repeated severe flooding problems experienced by these properties will be solved after completion of this project.

Combined payments by FEMA and the National Flood Insurance Program (NFIP) for the 1996 losses totaled \$764,000. The cost of this project was \$340,000 less than those losses, and it was a one-time payment. The Hazard Mitigation Grant Program (HMGP) property acquisition project gave residents the necessary capital to relocate out of the flood zone.



**Morgan County,
West Virginia**



Quick Facts

Sector:

Public

Cost:

\$422,480.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Newton - Acquisition Project Buyout as an Effective Investment

Baker County, GA - In 1994, Tropical Storm Alberto devastated central and southwestern Georgia. The river communities of Newton and Albany were among the hardest hit by floods from the storm. Alberto, which meandered over the state for several days before dying out, dumped up to 28 inches of water in some areas. One-third of Georgia's counties were declared federal disaster areas.

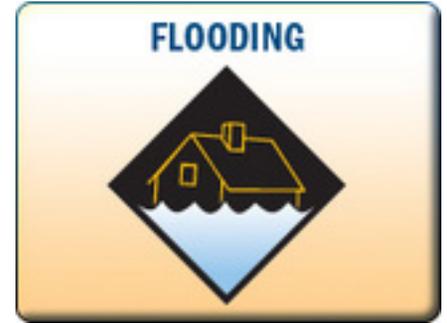
Located in Baker County, Newton is a small rural town with a population of less than one thousand. The town lies about 20 miles southwest of Albany and is located next to the Flint River. Alberto left the downtown area under 12 feet of water; flood depths were as high as 20 feet; 150 homes and businesses flooded; and several historic structures were damaged. Newton suffered \$4.5 million in damages.

In the Newton mitigation project, FEMA funded the acquisition and demolition of 20 residential and 19 commercial structures. The total cost of the project was \$754,464. All but one business moved out of the floodplain.

For five of the first nine days of March 1998, a storm system inundated Georgia with torrential rain. More than 40 percent of Georgia's counties had some level of flooding. The buyout of 39 residential and business properties after the 1994 flood proved to be an effective investment in Newton. Nearly \$2 million in damages and losses were avoided. If these buildings had merely been repaired after the 1994 flood, many would have been completely destroyed in 1998.



**Baker County,
Georgia**



Quick Facts

Sector:

Public

Cost:

\$754,464.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

On Safer Ground New Secure Housing Program

Toa Baja, PR - When Hurricane Georges hit Puerto Rico in Sept. 1998, residents of low-lying areas of the municipality of Toa Baja, including Fernando Flores, had already endured yearly seasonal flooding. To relocate families whose homes were destroyed or damaged by flooding, especially those affected by Hurricane Georges, the Commonwealth of Puerto Rico created the New Secure Housing Program (NSHP). Many Toa Baja residents were included in this program, using funds provided by the FEMA Hazard Mitigation Grant Program.

Fernando Flores and his family lived in a low-lying area of Toa Baja. La Plata River and a nearby creek would flood the area and its main roads, isolating the community for several days. The families had to wait for the floodwaters to recede in order to receive any assistance.

"When we lived next to the creek, between 1973 and 2002," said Mr. Flores, "water would rise as much as 3 to 4 feet into our home. This would happen as often as once or twice a year. The cost of replacing appliances, furniture, clothes and other personal items was over \$5,000 each time. Every time we flooded, we lost a part of ourselves."

The residents of this sector were pleased to discover the Office of the Governor of Puerto Rico had proposed the implementation of the NSHP and that they would be included among the families to be relocated to a safer area. The voluntary NSHP Toa Baja project, now called Urbanizacion Campanillas (Campanillas Subdivision), relocated 223 families out of harm's way. After the project was completed in 2002, the Municipality of Toa Baja demolished the acquired structures and cleaned up the surrounding area. Only 20-25 families decided to stay in the few structures remaining in Villa del Sol.

During the previous two years, Toa Baja residents endured two significant rainstorm events, major flooding in Nov. 2003 and Tropical Storm Jeanne in 2004. Both times families in Campanillas lived a different experience.

"We are now living in a concrete house, at a higher elevation," added Mr. Flores, "During Tropical Storm Jeanne, no water reached our house, and the water that did come down the streets, quickly flowed out of the subdivision. I know the streets and homes are higher and have better drainage, so we feel much safer."

Viable voluntary programs, initiated on a local level and funded by FEMA, can work wonders to assist individuals and families to move out of harm's way and relocate to a safer area. Now that they feel safer from the threat of rising floodwaters, the 223 families residing in Urbanizacion Campanillas are working on neighborhood programs to reflect ownership pride in their new homes, including efforts to maintain the subdivision as clean, attractive and in good working order.



Toa Baja Municipio,
Puerto Rico



Quick Facts

- Year: **1996**
- Sector: **Public**
- Cost: **\$16,667,917.00 (Actual)**
- Primary Activity/Project: **Acquisition/Buyouts**
- Primary Funding: **Hazard Mitigation Grant Program (HMGP)**



FEMA

Ottawa County, OK Acquisition Project

Ottawa County, OK - The Ottawa County flood mitigation project is located in the extreme northeast corner of Oklahoma. Flooding occurs in this region from the Neosho River, Tar Creek, and Spring River, which flow north to south into the Grand Lake of the Cherokees. Twenty-two of the homes within the two subdivisions have suffered substantial damages and are listed on the repetitive loss list.

The project consisted of the acquisition of six homes on the repetitive loss list. The homes were demolished and the land returned to open space or park area.

The benefits included the reducing the amount of repetitive losses and associated claims filed against the NFIP, preserving and restoring the project area as a natural open space, improving the water quality in the area, and providing wildlife habitats.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Ottawa County,
Oklahoma



Quick Facts

Sector:

Public

Cost:

\$419,867.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Partnership, Program, Persistence Watershed Buyout Plan

Neosho, MO - Although far removed from both the Mississippi and Missouri Rivers, the City of Neosho, had a long history of flooding. In the 1960s, the Hickory Creek Watershed (and especially the High School Branch which runs directly through the City) was not sufficient enough to carry runoff water in severe storms. Average annual flood damages to homes, businesses, public facilities, roads, and bridges totaled \$855,500.

Armed with documented statistics, the City developed a watershed agreement in cooperation with the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). The agreement was designed to eliminate the flood-rebuild-flood cycle within the City via a buyout of several residential and commercial properties and the construction of 11 floodwater retention dams. During Missouri's Great Flood of 1993, the City experienced unprecedented flood damage. The Watershed Plan, already developed, was in desperate need of execution.

Following the 1993 flood, FEMA's Hazard Mitigation Grant Program (HMGP) funds became available and the City of Neosho was able to acquire 52 residential properties. The buy-out program received overwhelming community support. An additional 26 property owners wanted to participate in the buyout program, but unfortunately the HMGP funds were not sufficient enough to meet all known needs.

In Aug. 1997, the citizens of Neosho decided to take control of their own destiny and passed a 3/8 cent sales tax for park, recreation, and storm drainage projects. Nations Bank agreed to finance up to \$1.5 million in bonds to complete the flood-buyout program. The City obtained a 4.51 percent interest rate and recently approved the first issue of nearly \$1.4 million. Nineteen properties have been targeted for the first issue. The \$203,000 generated through the tax and approximately \$120,000 of an already existing transportation tax will be used to pay off the bank note.

City officials have mentioned over and over again that the flood buyout program proved to the community that hazard mitigation makes sense. The HMGP was the "jump start" the City needed. Since the buyout program the NRCS has now committed the needed funds to complete the floodwater-retention dams. A partnership, a program, and persistence by City officials have forever changed the way the City deals with its flood risk.



Newton County,
Missouri



Quick Facts

Sector:

Public

Cost:

\$1,800,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Petersburg Area Acquisition Returning Area to Natural Contours

Cabins, WV - Rapid snow melts and heavy rains caused this area of West Virginia to suffer flood damages in 1949, 1985, and three times in 1996. Each subsequent event caused damages of increasing measures to residential properties. The September 1996 flood caused a great amount of damage in this area, and one family's home was completely washed away.

The Grant County Commission acquired and demolished two, flood-prone residential structures: a two-story brick residence and a one-story wood frame home, plus the vacant land between them.

After the man-made structures were removed, the vacant land was landscaped to meet the adjacent contours, and seeds and straw were applied to retard erosion. Deed restrictions require that the land remains as open space in perpetuity to block future development in this area of the floodplain. The State Department of Natural Resources is planning to use this area for stream access, which is well within the guidelines for land use in the Hazard Mitigation Grant Program (HMGP) Acquisition Program.

Losses from the November 1996 event totaled \$101,000 for these two residences. Additionally, one entire residence was washed away during this event, representing another \$50,000. Cost saving from not having to deploy emergency services personnel in the future, while not measured in exact dollars, is significant.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Grant County,
West Virginia**



Quick Facts

Sector:

Public

Cost:

\$196,393.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Philippi Acquisition Preventing Flooding In a Rugged Terrain

Philippi, WV - The terrain of West Virginia is very rugged, consisting of forested hills and mountains with narrow valleys. Due to the extremely narrow river valleys throughout most of the State, flooding is the most common cause of widespread disaster.

The flood stage is 17 feet. Since 1985, the Tygart River has flooded 8 times with flooding over 20 feet. In 1996, the area experienced, again, heavy rains and flooding. This repetitive flooding has caused more than \$2 million in damage.

The community received Hazard Mitigation Grant Program (HMGP) funds to acquire three residential and three vacant commercial warehouses. Philippi will retain this area as open space.

Based on previous damage assessments, a savings of \$270,931 will be avoided in future damage. Plus, savings in disaster response costs are expected as a result of this project.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Barbour County,
West Virginia**



Quick Facts

Sector:

Public

Cost:

\$165,493.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Sportsman's Paradise Changing Vacation Spot for Recreation

Berkley County, WV - Sportsman's Paradise was initially a place for weekend visits and summer vacations. Approximately 10 years ago it became a year-round community. It is located in one of the lowest lying areas of the State, with some properties having an elevation of 21 feet below the base flood elevation.

The January 1996 flood event was caused by snowmelt from a 3 foot blizzard and rain from a 100-year storm. As a result, FEMA provided assistance to the State of West Virginia by identifying mitigation opportunities in the State. This aided the State in developing applications for Hazard Mitigation Grant Program (HMGP) funded projects. The funding for the project was a combination of HMGP and State monies.

Berkley County, a State leader in the adoption of regulatory codes to protect the lives and property of its residents, has floodplain ordinances, which require all substantially damaged properties to be elevated when rebuilt. For many residents this requirement was both financially and physically problematic.

Initially, letters were sent to all property owners in Sportsmen's Paradise inviting them to participate in the voluntary program, some chose not to at that time. September 1996 brought severe flooding to the area again. Following that incident, the number of participating owners rose to 32: that's 50 percent of the owners in the community.

This project provided the opportunity to get 32 structures out of the floodplain and therefore reduce the level of flooding in the area. Permanently removing these properties from the floodplain eliminated the need for future Federal disaster relief or National Flood Insurance Program (NFIP) payments in this area. Additionally, large quantities of debris (including junk cars, boats and car parts), representing potential implements of destruction during a flood, were removed.

The benefits to the residents in reduced human suffering, both physically and mentally, are immeasurable. Dollar values for avoided expenditures for emergency services personnel and equipment must also be counted as benefits. Transforming the land to open space will provide all residents with increased opportunities for recreation and additional recharge areas for future flood events.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Berkeley County,
West Virginia**



Quick Facts

Sector:

Public

Cost:

\$636,957.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Story County Acquisitions Properties Transformed for Training Uses

Story County, IA - The Arrowsmith development in Story County is located approximately 2 miles north of Ames, Iowa, and has received repetitive flooding within the last 7 years. The six properties included in this acquisition experienced flooding in 1990, 1993, and 1996. The types of damage caused by these flooding events included collapsed basement walls, damaged porches, damaged exterior walls, damaged interior walls; and destroyed furnaces, water heaters, and other household appliances. These homes suffered more than \$318,747 in real property damage from flooding.

This project was funded with \$549,662 from FEMA in cooperation with Iowa Emergency Management Division (now Homeland Security Department of Emergency Management), and an additional 25 percent contributed by Story County and the property owners. At least \$732,884 was budgeted to acquire the properties, properly dispose of any hazardous materials, demolish the structures, and return the area to a natural habitat.

The project has been a great success for Story County. In 1998, the county experienced more flooding. At the time of this most recent flooding, site visits were made to the acquired structures, which at the time had not been completely demolished. FEMA Region VII personnel determined that all of the structures would have suffered over 50 percent damage again, only 2 years after the previous flood. The estimated present savings after just one flood event are as high as \$541,900, not including avoided costs of warning, rescue and evacuation.

To aid the task of demolition, the vacant houses were transformed into classrooms and practice sites for the Iowa State Fire School. From June 18 through June 21, 1998, fire and emergency personnel from across the state and some surrounding states utilized the flood properties to study arson investigation techniques, practice fire-fighting strategies and conduct other hands-on training.



Story County,
Iowa



Quick Facts

Sector:

Public

Cost:

\$732,884.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Town of Fredericksburg Acquisition Despite the Lack of Funds

Fredericksburg, IN - The small community of Fredericksburg lies along the Blue River in southeastern Indiana, 20 miles northwest of Louisville, Kentucky. With a significant portion of its development in the floodway, this community of 129 residents experiences significant repetitive flooding and consequent damage.

When a Federal disaster declaration during the summer of 1996 made Hazard Mitigation Grant Program (HMGP) funding available, members of the community immediately sought assistance in getting people out of the way of future flooding. A major obstacle for the Town of Fredericksburg was its very limited tax base and virtually no money to contribute to a project. The townspeople achieved their goal of flood mitigation by working with their local Regional Planning Commission (RPC).

The RPC has been coordinating the HMGP and Indiana Housing Finance Authority funding for the acquisition of 29 floodway properties, including 17 residences. As a result of thorough planning, coordination, and cooperation, the town's project will allow 17 households the chance to begin anew, out of the floodway. As of November 13, 1998, there have been 13 acquisitions completed. The remaining properties were acquired by the end of February 1999.

The steady progress of this voluntary acquisition project has prompted assistance from other programs and agencies, including conservation planning from the Department of Natural Resources, as well as development of nearby Federally subsidized low-income housing funded by the Indiana Housing Finance Authority. Participants are finding relief from flooding, and Fredericksburg is taking the opportunity to develop portions of the town that lie on higher ground. Savings in avoided damage from this project is expected to be at least \$1,117,300.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



Washington County,
Indiana



Quick Facts

Sector:

Public

Cost:

\$965,258.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Town of Louise Acquisition Project

Louise, MS - Gill Quarter, a low-income, 22-home subdivision in the Mississippi delta Town of Louise, is located within the Silver Creek floodway. Seasonal flooding of the subdivision is a constant threat to the homeowners and has caused great damage to their homes.

The Mississippi Emergency Management Agency, the Town of Louise, the South Delta Planning and Development District, and the Mississippi Department of Economic and Community Development participated in the project to provide Hazard Mitigation Grant funds and Community Development Block Grant funds to acquire the structures and relocate the residents to new affordable housing and rental units.

The most valuable information source was the combined experience of the participants. But the best benefit was the removal of people and structures from the floodway.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Humphreys County,
Mississippi**



Quick Facts

Sector:

Public

Cost:

\$800,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Town of Vinton Acquisition Project

Vinton, VA - The primary risk in Virginia's Roanoke Valley is from flooding caused by tropical storms and localized thunderstorms and heavy rains. The Roanoke River and numerous smaller streams traverse the valley, which is surrounded by the Blue Ridge Mountains. The area has experienced 17 major flooding events between 1877 and 1995 with the four largest floods occurring in the last 25 years.

The Midway community within the Town of Vinton, Virginia, is close to the confluence of Glade and Tinker Creeks. A large portion of the community is within a National Flood Insurance Program (NFIP) Zone AE with 11 structures in the floodway. This area has had major flooding four times within 25 years.

FEMA, the State of Virginia, local governments and the Norfolk and Southern Railroad assisted in submitting this project for Hazard Mitigation Grant Program funds. The project removed the 11 houses from the floodway and purchased 13 vacant lots adjacent to the residential parcels.

Since the 11 homes have been removed, the area has not experienced flooding. However, based on past damage assessments, the savings in avoided future damages are expected to be at least \$687,874, plus the savings in disaster response costs.

2009 Follow-up:

Craig Sheets, Emergency Management Services (EMS) Director for the Town of Vinton, said, "In November 2009 there was two feet of floodwater in the Midway area where the Acquisition Project took place, with no flooding to surrounding area homes." The November 2009 storms tested the project area and proved it to be a positive investment in saving disaster response and repair costs.



Roanoke County,
Virginia



Quick Facts

Sector:

Public

Cost:

\$556,706.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Harris County Flood Control Changes Made After Allison

Harris County, TX - Tropical Storm Allison descended on southeast Texas in June of 2001 and dumped 37 inches of rain in 12 hours, claiming 23 lives. Portions of major highways were submerged, 30 counties affected, businesses were destroyed and 1,611 damaged, 155 schools sustained water damage and over 35,000 homes were affected by flooding. The Texas Medical Center campus and buildings sustained damages that are expected to exceed \$2 billion. Tropical Storm Allison is now the flood of record for the Houston metropolitan area and Harris County.

Harris County is subject to frequent severe flooding from tropical storms and hurricanes. Historically, the county experienced 16 major floods from 1836 to 1936, some which caused deaths and flooded downtown Houston. In 1935, the Texas State Legislature established the Harris County Flood Control District (HCFCD) to have sole responsibility for the management of storm water and its results. Funding for the district is through a dedicated property tax.

The HCFCD has employed many structural mitigation measures such as channelization, detention facilities, bridge elevations and construction of levees and/or flood walls. Since 1994, the district has been aggressively pursuing acquisition and buyout as their major non-structural mitigation measure. Over the last 12 years the district has purchased 440 properties (vacant lots and houses) at a cost of \$40 million. Their pro-active buyout program continues both during a federal declaration and between flooding periods. Their goal is to move people out of harms way and allow the land to return to a natural state. Their process has been fine tuned to a fast track approach and because it is on-going, the response time and potential for increased costs have been greatly reduced. Additionally, the district seeks partners to share in project costs. Active partners, for example, are the US Army Corps of Engineers (USACE), Texas Parks and Wildlife Department, FEMA Hazard Mitigation Grant Program (HMGP), City of Houston Parks and Recreation Department, and the Department of Housing and Urban Development (HUD).

Since its creation, the district has completed structural and non-structural flood control projects at a cost of approximately \$4 billion. The boundaries of the district encompass 1,756 square miles, 22 watersheds and more than three million inhabitants, including the City of Houston which is the fourth largest city in the United States.

This same area was flooded by Allison; however, damages were significantly less. HCFCD was awarded HMGP money to buy out over 600 substantially damaged homes as a result of the storm.



Harris County, Texas



Quick Facts

Sector:

Public

Cost:

\$5,800,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Repetitive Flood Damaged Homes Two Approaches



Dauphin Island, AL - Only a year after they were built, the homes at 1301 and 1303 Chaumont experienced their first flood damage from Hurricane Camille in August 1969. After years of repetitive losses, however, Hurricane Ivan (2004) did no further damage to either home. The homeowners and the Town of Dauphin Island had taken action to permanently eliminate or reduce the flood risk to these structures.

Hurricane Camille brought 12 inches of water into the family home at 1301 Chaumont, causing over \$10,000 in damages. Over the 30 years the family lived in this home, they experienced many more floods. The flood damages doubled to \$20,000 when Hurricane Frederic (1979) brought three feet of water into the house. The flood damages continued to occur - four inches and \$4,500 in damage from Hurricane Elena (1995); eight inches and \$12,000 in damage from Hurricane Danny (1997); and nine inches and \$16,000 in damage from Hurricane Georges (1998).

The home at 1303 Chaumont also experienced repetitive flood damage. Hurricane Danny caused eight inches of flooding and \$7,000 in damages, and Hurricane Georges resulted in 12 inches of flooding. The ownership of the home had changed over the years with the most recent owner experiencing both of these significant floods.

Working with the Alabama Emergency Management Agency, the Town of Dauphin Island applied for and received grants to address both repetitive flood-damaged homes. In 2001, the Town of Dauphin obtained a Federal and State grant to elevate the home at 1303 Chaumont. For approximately \$50,000, the home was elevated over 12 feet. In 2002, a grant was received through the Flood Mitigation Assistance (FMA) Program to acquire the home at 1301 Chaumont. The voluntary acquisition paid the homeowner the fair market value of the home. After demolition of the home, the land was deeded to the town and made into a neighborhood park.

On Sept. 16, 2004, Hurricane Ivan brought a record 38 inches of flooding as a result of tidal surge. Without the property acquisition at 1301 Chaumont and elevation at 1303 Chaumont, the losses from Hurricane Ivan would have included substantial damage or destruction of these two family homes.

Mobile County,
Alabama



Quick Facts

Sector:

Public

Cost:

\$50,000.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Unger Acquisition Family Handled Repetitive Loss Property

Hampshire County, WV - In 1993 the Unger family had purchased a former vacation cabin to use as a permanent residence to escape renting. They had, at the time, two infants and were glad to get affordable housing. The salesperson assured them that the structure was out of the floodplain. But after the birth of their third child, they were forced from their home by the January 1996 flood event on the North River.

They repaired their flood-damaged house with monies received from FEMA and again reoccupied the dwelling. They were then informed by a local resident that the dwelling site had been flooded many times in recent memory, including the event associated with Hurricane Agnes (1972).

Lacking the means to pursue legal action against the seller of the property, they were content to remain and hope for the best. Unfortunately, in September of 1996, another flood event associated with Hurricane Fran forced them from their home.

The Ungers applied for funds from the Hazard Mitigation Grant Program (HMGP) in October 1996. They remained with the program and were one of only three identified property acquisition projects to be approved in early 1998 from an initial field of 99. They waited patiently while the process was completed and their mortgage was satisfied in February 1999.

The best partners in this process have been the Capon Valley Bank, West Virginia Division of Natural Resources, and the Hampshire County Commission. The Capon Valley Bank agreed to forego foreclosure while the project was viable and the process was moving. The Division of Natural Resources agreed to take title so that the site could be used as a public access site. The Hampshire County Commission provided up-front funding for the project.

The most valuable source of aid and information was the regional FEMA staff. In an atmosphere of confusion and ambiguity, they were the guide to completing this project and advancing all others currently underway. Considering the frequency of flood events and average cost to assist the Ungers in repairs, the projected savings from this project are \$51,343 over the next 30 years.

The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Hampshire County,
West Virginia**



Quick Facts

Sector:

Private

Cost:

\$46,275.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA

Valmeyer Acquisitions Buyouts Create Open Space

Valmeyer, IL - Prior to 1993, the Village of Valmeyer was a small farming community in southwestern Illinois. The Village is located 5 miles east of the Mississippi River, just south of St. Louis, Missouri. The Village is protected by levees and, consequently, has rare but extreme flood events. In the Great Flood of 1993, the Village experienced record flooding. The 1993 flood inundated almost the entire Village for months. It caused substantial damage to over 200 homes.

Rather than rebuild in the wide Mississippi River floodplain, the Village of Valmeyer utilized funds from the Hazard Mitigation Grant Program (HMGP), Illinois Department of Commerce and Community Affairs and the Economic Development Administration to mitigate the flood damages. The Village implemented an acquisition project to acquire 242 properties, many of them substantially damaged. An additional 92 structures were acquired using National Flood Insurance Program (NFIP) Section 1362 funding (no longer available). To completely mitigate the threat of flooding, the entire Village relocated three miles away to a bluff overlooking the site of the former Village.

The acquisition project moved quickly, and within 2 years nearly the entire flood-ravaged Village had been acquired and demolished. The site of Old Valmeyer has been dedicated to open space and will be used for recreation and farming purposes. The Village has successfully relocated above the floodplain, and most original town residents now live in the "New Valmeyer." The new Village includes residential areas, a commercial and industrial district, school buildings, churches, and public offices. Located within commuting distance of St. Louis, New Valmeyer is a prosperous community experiencing rapid growth.



Monroe County,
Illinois



Quick Facts

Sector:

Public

Cost:

\$8,345,914.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)



FEMA



Vernonia Acquisition and Elevations Moving Properties Out of the Floodway

Vernonia, OR - Following an extended period of unseasonably cold weather and heavy snowfall in the Pacific Northwest, warming temperatures and rain began thawing the snowpack and frozen rivers throughout Oregon. Streams rose quickly and reached flood stage in many locations. At least 25 Oregon rivers reached flood stage. Mudslides, avalanches in the mountain passes, and road washouts also occurred in many parts of the State. Extensive earth movement was experienced in many areas, including landslides, stream bank erosion, and significant amounts of sediment transport.

Initial assessments reported an estimated \$280 million of damage, of which one-third was to private property, and the remainder was to public property. On February 8, 1996, Governor Kithaber declared a State of Emergency for 18 counties within Oregon. By February 9, 1996, a Federal disaster was declared for a total of 27 counties.

In Oregon, the City was aware that a significant number of the structures proposed to be elevated as part of the hazard mitigation project were within the floodway. The City's flood hazard ordinance identifies specific requirements for structures within the floodway. The objective of the acquisition and elevation project was to bring all substantially damaged residences into compliance with the FEMA flood insurance requirements. The best alternative taken was to rapidly implement the program to prevent property damage from recurring within Vernonia's floodways and floodplains at the lowest possible cost and within the quickest timeframe.

The City first worked from a prioritized list of properties to acquire located within the floodway and to elevate houses two feet above floodplain level. In order to inform citizens of the hazard mitigation process, a project manager was hired to gather input and hold a number of public meetings. In addition to these meetings, an Unmet Needs committee formed to address and focus specifically on mitigation. Presentations were given identifying the planning process, floodway/floodplain definitions, and criteria for home elevations. Citizens were given the opportunity to ask questions and provide input on flood prevention measures. The City sent letters to property owners with a return form to confirm interest in the mitigation project.

The majority of residents whose homes were substantially damaged could not afford to elevate their homes. In early 1996, Vernonia was less than two percentage points away from a citywide low-to-moderate income rating. To address the financial needs of this community, the City met with the Oregon Emergency Services, FEMA and Oregon Economic Development.

All of the structures proposed for acquisition are located within the floodway along the Nehalem River. Floodways serve as a natural drainage area as rivers fill to their maximum capacity. Moving the structures out of the floodway would allow water to move freely along its natural course. This in turn will decrease water velocity which would lessen erosion damage.

Columbia County,
Oregon



Quick Facts

Sector:

Public

Cost:

\$750,000.00 (Actual)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Technical Assistance Program (HMTAP)



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)



FEMA

Willis Creek-Locust Grove Flood Mitigation Project

Allegany County, MD - This project represents the second phase in Allegany County government's plan to remove residential properties from the 100-year floodplain along Willis Creek. Severe flooding in 1984 resulted in 29 homes receiving serious damages from water. Seventeen of these properties were purchased, and the remaining twelve were elevated above the 100-year floodplain. The Maryland Historical Trust ruled that the flooding in 1984 eliminated any historical value that Locust Grove may have possessed.

Flooding in January 1996 was at the 500-year level, resulting in eight of the remaining structures receiving substantial damages. These properties became highly desirable for acquisition in accordance with the goal of the Maryland State Hazard Mitigation Plan: to remove as many residential properties as possible from the 100-year floodplain.

This project consists of the purchase and demolition of eight substantially damaged properties located in the 100-year floodplain. Following this, the vacant land would be graded to match the surrounding terrain, allowing it to return to its natural state. The placement of use restrictions on the deeds of the vacant land will prevent future residential or commercial development in the area.

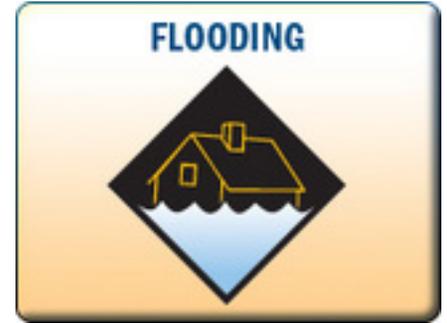
Following the January 1996 flood event, one homeowner received over \$29,000 in claims payment from the National Flood Insurance Program (NFIP) and another homeowner needed to borrow over \$54,000 from the Small Business Administration (SBA). When multiplied by the number of substantially damaged properties in the project, the benefit savings were obvious. The increase in open space in the area provides the entire community with additional recreational opportunities.

The largest benefit from this, and all acquisitions, is to the people (residents and emergency services personnel) who are no longer subject to peril at this location. These properties received damages more than 50 percent of their market value, making them a priority for the Hazard Mitigation Grant Program (HMGP). Had the owners tried to repair the structures, they would have been subject to stricter building codes which would have required elevation, a costly technique. The acquisition of the properties created permanent benefits by removing them from the need for future disaster aid.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.



**Allegany County,
Maryland**



Quick Facts

Sector:

Public

Cost:

\$299,250.00 (Estimated)

Primary Activity/Project:

Acquisition/Buyouts

Primary Funding:

Hazard Mitigation Grant Program (HMGP)