
WATERLINES

News affecting the management and use of Indiana's water resources

DIVISION OF WATER
INDIANA DEPARTMENT OF NATURAL RESOURCES
SUMMER 2011

STATE FAIR MODEL—25 YEARS AND STILL SERVING, STILL THRILLING

This August marks 25 years that the Division of Water State Fair Model has served as an educational tool. This tradition of outreach was founded upon the support of the division director, John N. Simpson, when the model was created in 1986. Current division director Michael W. Neyer carries on the tradition. Over the years, hundreds of staff members have contributed countless hours of commitment, serving as stewards of Indiana's surface and ground water resources, to ensure that the vision of educating present and future generations continues.

The target audience for this model has always been children, although adults seem to enjoy it, too. Division of Water staff members want to instill the message of sound floodplain management practices in children, so that when they become adults and subsequently land owners or developers, they will remember these practices and principles. After several years of having the model at the fair, it became common to have parents tell division staff that their children had seen the model many times before, but insisted upon observing it again.

In recent years adults have told division staff that they remember seeing the model as chil-

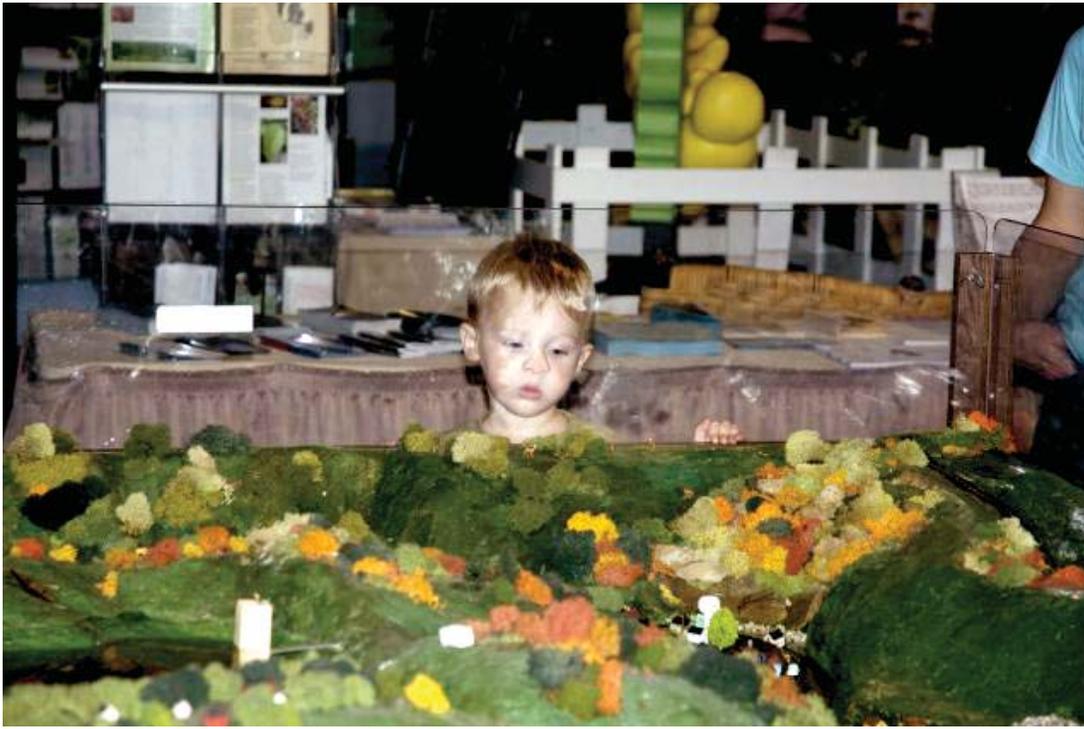


*Surprised by "raindrops", the crowd responds with delight and curiosity.
(Photo by Jim Kirk, DNR)*

dren, and now, as parents bring their children to see and learn from the model. Two-and-a-half decades after the flooding model was conceived, interactive electronic displays are all the rage. The current trend is toward computer-generated

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*Nose pressed to the glass tells it all. This little guy wants to see every detail.
(Photo by Jim Kirk, DNR)*

In May 1988, the State of Indiana was honored with an award from the Association of State Floodplain Managers (ASFPM) recognizing the outstanding Floodplain Model. More recently, The Indiana Water Resources Association presented the Division of Water with its 2011 Outstanding Achievement Award (Public Sector) in recognition of the State Fair Model.

graphics and virtual reality but the division's old-fashioned model—with its flashing lights, flowing water, tiny towns of floating cars, animals, homes, earthen dams, and threatening thunderclaps—continues to fascinate dozens of young Hoosier State Fairgoers every 20 minutes during the fair.

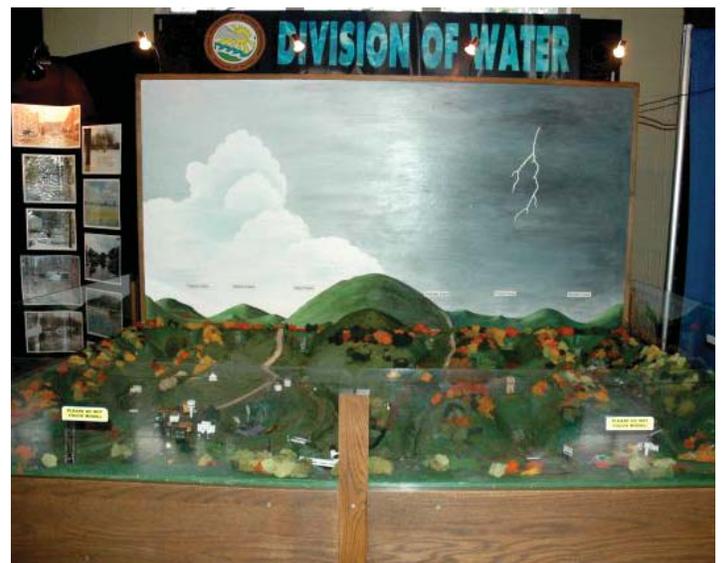
The State Fair continues to be a popular event with hundreds of thousands of people coming to enjoy fun events, good food, and unique learning experiences they won't find anywhere else. In 2009, a record 973,902 people attended the fair. The Division of Water Model will run again this year, Aug. 5-21, along with a display featuring a history of the model. Come to the DNR building and check it out. But be prepared, you just might feel a few raindrops! ☁

CONFERENCE CORNER

ANNUAL INAFSM CONFERENCE

The Indiana Association for Floodplain and Stormwater Management (INAFSM) will celebrate its 15th anniversary this year. Plans are for this annual conference to be the best to date. The conference will be held at the beautiful Potawatomi Inn in Pokagon State Park, located near Angola, Sept. 14-16.

INAFSM has announced it will have online registration for the 2011 conference. For more conference information, see inafsm.net. ☁



*The Division of Water State Fair Model was designed to replicate natural and man-made features found in Indiana such as rolling hills, valleys, creeks, bridges, earthen dams, reservoirs, levees, homes, and commercial development.
(Photo by Jim Kirk, DNR)*

CONGRATULATIONS



Four more Hoosiers recently passed the Certified Floodplain Managers (CFM) exam. The exam was offered in Indianapolis on March 7. Congratulations to David Ballew (Evansville) of the Vanderburgh County/Evansville Building Commission; Michael Widing (Anderson) of the Anderson Department of Municipal Development; William Peeples (Greenwood) of the Greenwood Planning Department; and, Stephanie Roberts (Lawrenceburg) of CDS Associates for earning the designation of Certified Floodplain Managers. Congratulations also to two of our neighbors from Ohio who traveled to Indianapolis on March 7,

also passing the CFM exam—Cindy Klopfenstein (Loveland, Ohio) and Mark Kluesner (Cincinnati).

The CFM program is a national certification program established through the Association of State Floodplain Managers (ASFPM). This certification is awarded by the ASFPM directly to individuals who apply and successfully pass the exam, demonstrating their knowledge of the basic national standards and programs of floodplain management. The program recognizes continuing education and professional development that enhances the knowledge and performance of local, state, federal, private-sector floodplain managers. For a list of current CFMs and more information on the certification program, go to www.floods.org. ☞

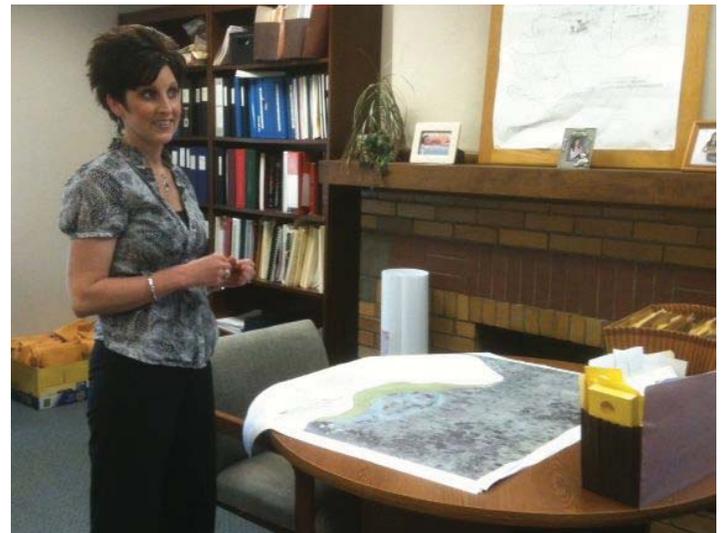
SPRING STORMS AND FLOODS

Spring 2011 was difficult for several communities. Severe storms that brought tornados and flooding starting on April 19 affected many areas across the state. Vanderburgh and Posey counties were hit particularly hard. Hundreds of homes and other structures were damaged from flooding. The southwest portions of the state experienced the worst flooding since January 1937, as massive and historic river flooding struck the lowest reaches of the Ohio River in early May.

Local floodwaters of more than 3 feet deep formed behind levees in the Hazleton and New Harmony areas. West Baden Springs experienced its worst flooding since March 2008. Other communities noting flood damage to buildings were Clarksville, Utica, New Albany, and portions of Washington and Spencer counties.

While local officials work with owners of the flood-damaged buildings to ensure compliance with local floodplain regulations, many wait to see if disaster assistance will become available—particularly those who did not have flood insurance. Federal disaster assistance declarations are not awarded in all flooding incidents.

As of this writing, State and local governments in 32 Indiana counties have been approved for public



*Mindy Bourne, Posey County Area Plan Commission, used detailed mapping provided by DNR to determine floodplain status of flood-damaged structures and their sites for completing damage assessments on well over 100 structures.
(Photo by Anita Nance, DNR)*

aid to help cover the cost of cleaning up. The aid for local governments can cover 75 percent of the cost of debris removal, disaster services and infrastructure repairs in Benton, Clark, Crawford, Daviess, Dearborn, Dubois, Floyd, Franklin, Gibson, Harrison, Jackson, Jefferson, Jennings, Knox, Martin, Monroe, Ohio, Orange, Parke, Perry, Pike, Posey, Putnam, Ripley, Scott, Spencer, Starke, Sullivan, Switzerland, Vanderburgh, Warrick and Washington counties.

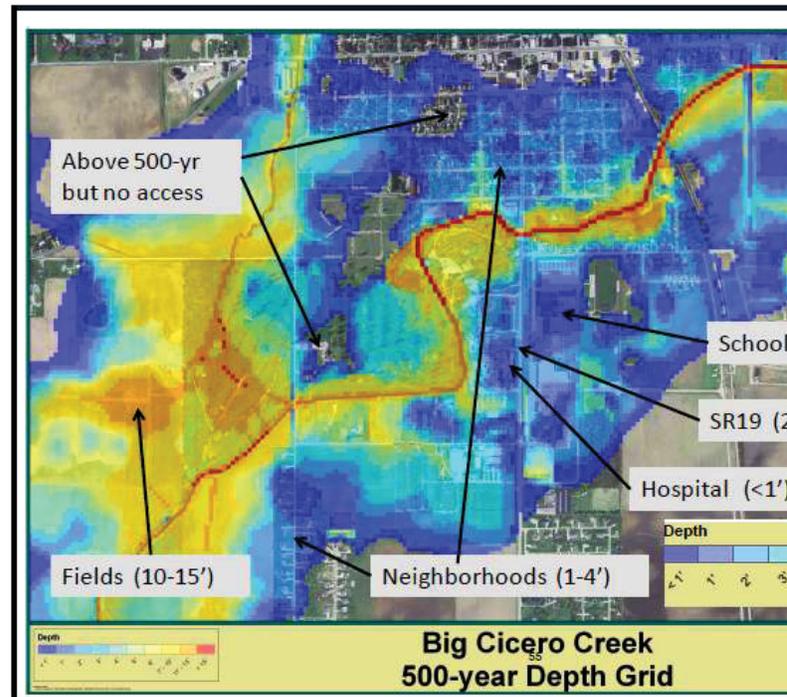
The Federal Emergency Management Agency is still reviewing Indiana's request for 11 counties for individual assistance, which helps citizens and businesses. ☞

RISKMAP IN INDIANA

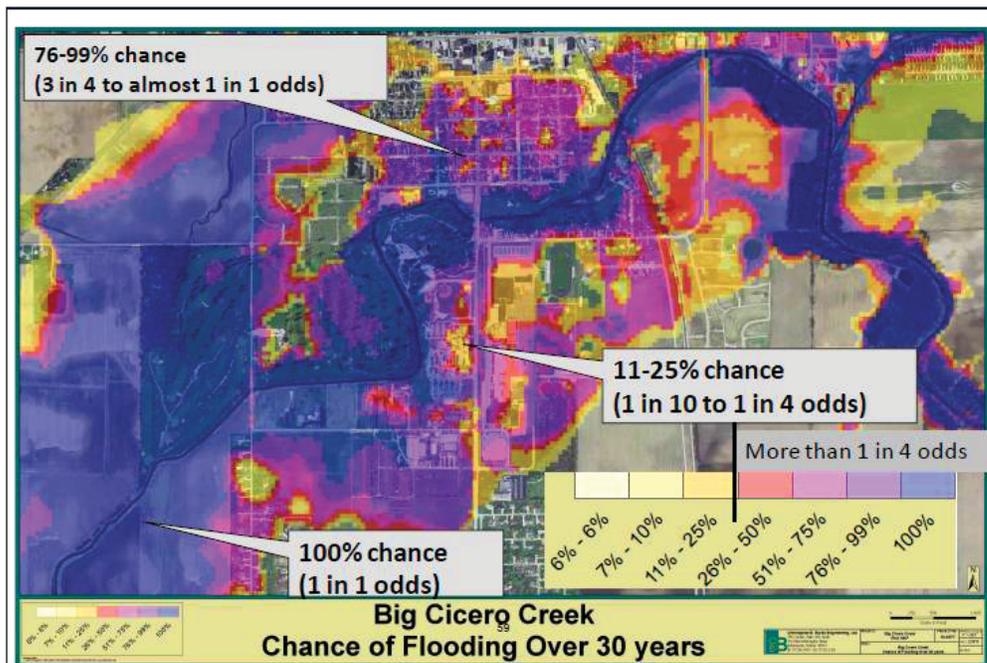
By David B. Knipe, P.E., CFM, IDNR, Division of Water

In 2005, the DNR, in partnership with the Federal Emergency Management Agency (FEMA), began a project to digitize and modernize the Flood Insurance Rate Maps (FIRMs) for the state of Indiana. As a Cooperating Technical Partner, the DNR, along with local communities, contractors and others, set out to produce FIRMs and Digital Flood Insurance Rate Map (DFIRM) databases with updated flood hazard information. As this project winds down, attention is focusing on RiskMAP, FEMA's new program for updating floodplain mapping—and a lot more. DNR has been involved in preliminary discussions regarding the direction and focus of the RiskMAP effort, and will play a major part, along with many others, in implementing RiskMAP statewide.

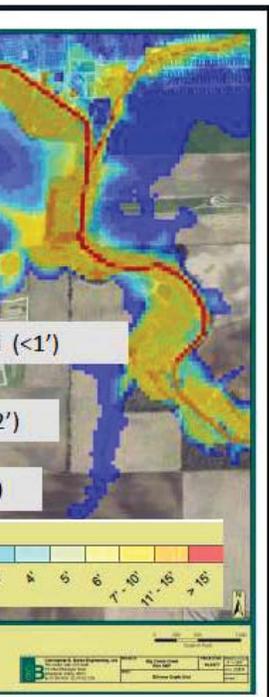
RiskMAP further enhances the FIRMs, involves communities during the assessment and planning stages, and guides and encourages the communication of risk to all. Through collaboration with federal, state and local entities, RiskMAP will deliver quality data that increase public awareness of the threat of flooding and lead to action that reduces risk to life and property due to flooding. The focus of RiskMAP is not only on further revisions to FIRMs, but also on the identification of mitigation strategies that would lead to the



reduction of flood risk in a community. While RiskMAP would not result in funding for implementation of those strategies, data derived during the RiskMAP process will be used in local hazard mitigation plans and would be developed in conjunction with local communities, which could then be used for project planning. During the entire RiskMAP cycle there will be a renewed commitment for communication with all stakeholders, including more points within the study process for communication regarding preliminary findings.



While the national RiskMAP strategy is just starting to round into shape, the DNR has taken some initial steps toward the vision of RiskMAP in Indiana. One major step forward has been the involvement of the Indiana Silver Jackets group with RiskMAP. Silver Jackets is a partnership between federal and state agencies involved in natural hazard mitigation to share and collaborate on projects to reduce the vulnerability of the state to natural hazards. The Silver Jackets group had identified some areas where significant data



needs existed, and, through a grant from the Office of Community and Rural Affairs, was able to fund an unprecedented data collection program that will be the foundation of RiskMAP. These data acquisitions include the statewide LiDAR and orthophotography program (see article on page 6), improvements to the National Hydrography Dataset, projects to better define fluvial erosion hazards and provide real-time flood inundation libraries, and enhancements to the Indiana Flood Information Portal.

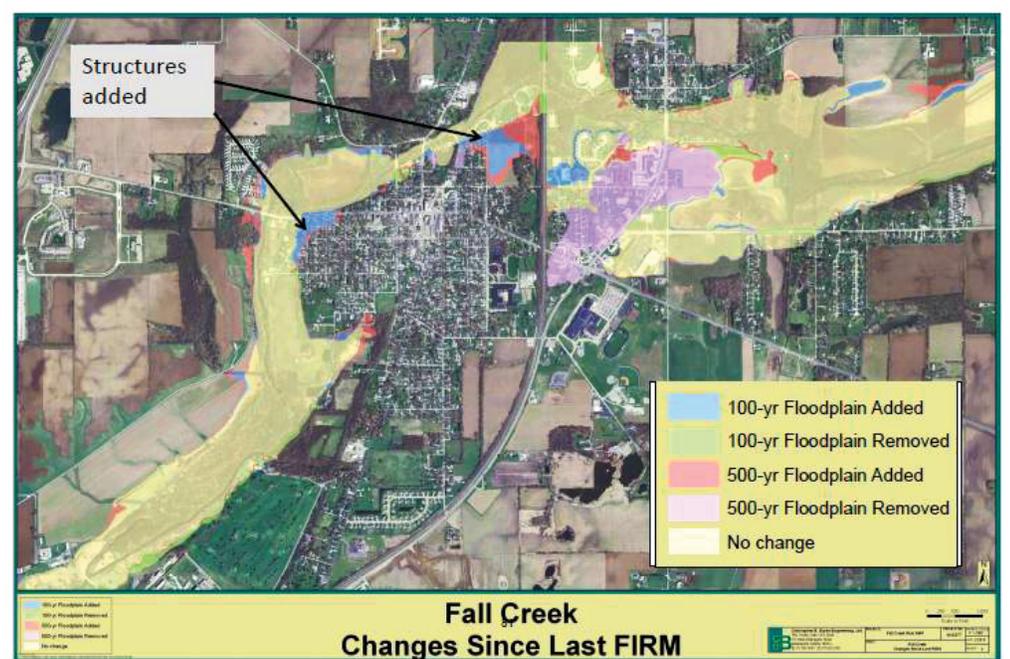
In addition, the DNR was awarded three “early demonstration projects” by FEMA to test some of the

new products and procedures in RiskMAP. The first project, conducted with the help of the Polis Center at IUPUI, was to conduct “discovery” in the Lower White River basin. Discovery is the process within RiskMAP in which the local stakeholders in a basin are first identified and brought into the RiskMAP process, and where mapping and mitigation needs are first identified.

A series of six meetings were held in January with local stakeholders in Spencer, Bloomfield and Washington (two meetings at each location) to introduce them to the RiskMAP concept and to collect initial data about flooding problems in the basin. Polis and DNR both contributed data to initial discovery maps for the basin. Based on feedback from the local stakeholders, Polis updated these maps for final distribution. The team also created a project report to FEMA detailing the methodology used for the project and suggesting improvements in the process in anticipation of final guidance from FEMA.

The other early demonstration projects were a demonstration of RiskMAP deliverable products for Cicero Creek in Tipton County and Fall Creek in Hamilton and Madison counties. For this project, DNR partnered with the Polis Center and Christopher B. Burke Engineering. These two streams had newly revised hydraulic studies completed, and these studies were then enhanced to deliver additional products. These products included depth grids for the 10%, 2%, 1% and .2% annual chance floods, grids related to the probability of flooding, both for a given year and over a 30-year timeframe, velocity grids, and annualized damage estimation, among other products. These products were then provided to the communities and other interested parties for review and feedback. The project team also produced a project report with suggestions for future development of these products.

As for the future, the Indiana DNR is partnering with the Illinois State Water Survey and the Illinois DNR for a discovery project for the lower and middle Wabash River basins. Pre-planning for these meetings has already begun, and discovery meetings are tentatively planned for late July. The Indiana DNR will also be issuing the last of the updated FIRMs from the modernization program this summer and fall. Please watch for further announcements on RiskMAP projects for your area. Ideas or comments are always welcome. Contact David Knipe at (317) 232 -4173 or dknipe@dnr.IN.gov for more information. ☞



THE 2011-2013 INDIANA IMAGERY AND LIDAR PROGRAM OVERVIEW

Information contributed by Jim Sparks, Indiana Office of Technology

While orthophotography has been dramatically improving floodplain mapping during the Map Modernization Program, improved elevation data will be the added essential elements in RiskMap (see associated article on pages 4-5). This makes the 2011-2013 Indiana Imagery and LiDAR Program exciting as well as crucial for the DNR Division of Water, as a Cooperative Technical Partner with the Federal Emergency Management Agency (FEMA).

The Indiana Office of Technology has selected a vendor who has begun to perform services that will result in the creation of two statewide data sets. These statewide data sets include orthophotography (1"= 200' scale 4-band orthoimagery at a 1-foot pixel resolution) and LiDAR (1.5-meter average post spacing). This project will run through calendar years 2011, 2012, and 2013.

Orthophotography

Orthophotography is aerial photography that serves as an electronic map. It has the mapping accuracy required for a wide variety of essential government applications and is the most used of all GIS data layers. Indiana obtained digital orthophotography in 2005, financed largely by the Indiana Department of Homeland Security. That data supported a wide range of projects around the state, benefiting economic development, transportation, natural resource management, and public safety, and was used by Google as the underlying data in Indiana to support Google Maps.

LiDAR

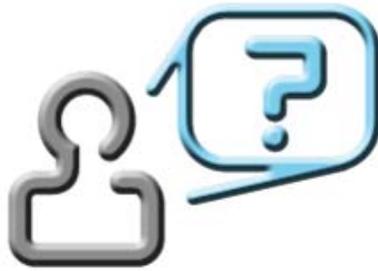
LiDAR is similar to orthophotography in that both data are typically captured using airplanes and both data provide a "picture" of an area of

interest. LiDAR, however, provides an exact three-dimensional model of an area by capturing millions of points in their correct location in space (x,y,z coordinates). In many ways, LiDAR is similar to the "fish finder" sonar graphs of the bottom of a body of water, except that LiDAR works in three dimensions and uses laser technology rather than sonar technology. Importantly, the results of LiDAR data collection are captured as digital data stored on a computer. LiDAR data is of interest to anyone who needs a precise elevation model of the earth's surface. Uses include:

- Analyzing river and stream beds and the catch basins they reside in to better understand the potential impact of flooding and how to mitigate flooring. In fact, one of the most critical pieces of developing quality floodplain mapping is the use of high-resolution elevation data to develop hydraulic modeling. According to a National Academy of Science report on the FEMA mapping process, the use of substandard elevation data was identified as the No. 1 reason for poor quality floodplain data.
- Site development
- Site security
- Providing an accurate 3-D surface to support development of orthophotography
- 3-D Visualization
- Used in conjunction with orthophotography, LiDAR data support highly accurate and automated feature extraction of natural features like tree cover and hydrography, and manmade features like buildings and impervious surfaces

More information about this program can be found at indianaimagery.com and Indiana Office of Technology's GIS page at in.gov/iot. ☞

Frequently Asked Questions



This Waterlines issue features flood specific mitigation FAQs. Information provided by the Indiana Department of Homeland Security, Mitigation Division.

Q: What is mitigation?

A: It is a sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects. Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage. Mitigation efforts provide value to the American people by creating safer communities and reducing loss of life and property. Mitigation specific to flooding includes such activities as:

- Complying with or exceeding National Flood Insurance Program floodplain management regulations.
- Enforcing flood-proofing requirements for new construction or repairing existing buildings.
- Adopting zoning ordinances that steer development away from areas subject to flooding.
- Acquiring damaged homes or businesses in flood-prone areas, relocating the structures, and returning the property to open space, wetlands or recreational uses.

Q: My home is in the floodplain and has been flooded. I want FEMA to buy my home. What do I need to do?

A: Mitigation grants are not given to individual homeowners. If a homeowner is interested in exploring a possible buyout of a home located in the floodplain, the homeowner needs to contact the City, Town or County Floodplain Administrator or the county Emergency Management Director.

Q: Will I be forced to sell my home if my community is granted funding for an acquisition project?

A: Acquisition projects funded under the FEMA Mitigation Programs are voluntary, and you are under no obligation to sell your home. Communities consider other options when preparing projects, but it may be determined by State and local officials that the most effective mitigation measure in a location is the acquisition of properties and the removal of residents and structures from the hazard area. Despite the effectiveness of property acquisitions, it may not make you or your family whole again. Acquisition projects are based on the principle of fair compensation for property. Property acquisitions present owners with an opportunity to recoup a large part of their investment in property that probably has lost some, if not most of its value due to damage. But, it will not compensate you or your family for your entire emotional and financial loss.

Q: Will someone be able to rebuild and make a profit on the property I sell in a FEMA-funded mitigation acquisition project?

A: Under the Stafford Act, any land purchased with grant 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.

Q: As local government representatives, we are interested in the mitigation buyout program. What do we need to do?

A: Communities wishing to apply for a mitigation grant must have a FEMA-approved and adopted Multi-Hazards Mitigation Plan. Many communities are currently developing their Multi-Hazard Mitigation Plan. Those communities may begin grant development, but are not able to submit their grants until the Multi-Hazard Mitigation Plan has been approved by FEMA and adopted by the community.

Communities interested in applying for a Mitigation Grant should contact the Indiana Department of Homeland Security Mitigation Program staff at (317) 232-3830. ☞

INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
402 WEST WASHINGTON STREET, ROOM W264
INDIANAPOLIS, INDIANA 46204-2641

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Editor – Anita Nance

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Division of Water
Indiana Department of Natural Resources
402 West Washington Street, Room W264
Indianapolis, Indiana 46204-2641
Phone: (317)232-4160
Toll free 1-877-WATER55

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