



# The Antediluvian

## Ohio's Floodplain Management Newsletter



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**THE FLOODPLAIN MANAGEMENT PROGRAM MISSION:** To provide leadership to local governments, state agencies, and interested parties toward cooperative management of Ohio's floodplains to ensure the reduction of flood damage and the recognition of the floodplain's natural benefit. This mission is accomplished through technical assistance, public awareness, education, and development / protection standards.



### In Retrospect

BY PETER FINKE, DEPUTY CHIEF DIVISION OF WATER (RETIRED)

On August 1, 2001, I retired from the Ohio Department of Natural Resources' Division of Water. Most of my 31 years with the ODNR were spent with Ohio's Floodplain Management Program. The following are some observations from my years with the flood program.

In 1970, I was fortunate enough to be hired to help implement the new Floodplain Management Program that the Division of Water had just started. Until that time, the Division of Water had a Flood Control Section whose main function was to coordinate various federal flood control works of the U.S. Army Corps of Engineers and the Soil Conservation Service. The Division of Water wanted to develop a new program that would include not only the traditional dam, levee and channel improvement projects, but also try non-structural strategies such as floodplain regulations, flood warning and forecasting, and flood insurance. To emphasize the new unified approach to reducing flood losses, the Flood Control Section was renamed the Floodplain Management Section. As with many state programs, this change did not just happen but was born out of necessity—Ohio had witnessed a terrible flood the year before in July 1969 that forced local

and state leaders to look for more effective and less costly measures to help reduce Ohio's mounting flood losses.

Back in 1970, few Ohio communities regulated floodplain use. In fairness, most of these communities lacked a good understanding of their flood-prone areas, since few flood maps existed at that time. True, the first flood maps were just beginning to be mailed to communities through the National Flood Insurance Program (NFIP), but these maps were extremely crude and geared primarily for insurance rating purposes. There were, however, some exceptions where local floodplain regulations were in effect. In southwest Ohio, for example, floodplain zoning regulations could be found in a number of townships and municipalities thanks to the efforts of the Miami Conservancy District. Another pocket of communities with floodplain regulations existed in northeastern Ohio. But in most communities, the construction of new buildings proceeded without any consideration being given to the risk of flooding.

I am happy to say that over the last 30 years, things have changed in Ohio.

The flood mapping efforts of the NFIP improved and almost every Ohio community now possesses a good indication of its flood threat. Floodplain regulations exist in virtually every flood-prone community. Improvements in radar technology, such as the Doppler Radar, have led to more accurate flood forecasting, and nowadays automated stream and rain gages send data instantaneously by satellite to National Weather Service offices and local/state emergency operation centers. Computer-based Geographic Information System applications enable planners to map flood-prone areas with greater accuracy and at less cost. All these factors help improve our response to the flood threat at the local, state, and national levels of government.

The key, however, to an effective state flood damage reduction effort rests with the local floodplain program. Here, too, I have seen a significant change during my years with the ODNR. More and more communities are recognizing that the floodplain management regulations they had initially adopted for the purpose of joining the NFIP can work well in reducing future flood damage when

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properly administered. They have come to understand that flood damage reduction standards do not operate in a vacuum and such regulations work best when they are integrated into and coordinated with other development plans and goals. Thanks to dedicated local floodplain administrators, whose task is not always an easy one, communities are beginning to see that floodplain regulations play a critical role in protecting their communities' welfare. Regrettably, local floodplain administrators have not always received the recognition they deserve. When the next flood hits, however, those homeowners who built their homes safely will appreciate the benefits of having heeded the advice of their local permit officials.

It has been my good fortune to have been associated with a program of such importance to the welfare and safety of Ohio's citizens, and to have known so many talented individuals at ODNR, throughout the state, and at the national level who work tirelessly to protect our natural resources.

## *First The Boss, Now A Mentor, Forever A Friend*

BY CYNTHIA J. CRECELIUS, CFM,  
PROGRAM MANAGER  
DIVISION OF WATER

This really should be an easy article to write; however, as I try to capture the essence of wishing a "happy retirement" to someone I've worked shoulder-to-shoulder with for nearly seventeen years, I am finding that the emotions are causing some difficulty. I started my floodplain management career in October of 1984 when Peter Finke hired me as one of his two planners.

When I joined the Program, Peter had already performed a mythical feat similar to that of the Phoenix. (For those of you who are not mythology buffs, the Phoenix was a lone bird that lived in the Arabian Desert for several hundred years and after being consumed in fire, rose out of the ashes to start another life.) Yes, I am using some imagination and

creative license, but Pete's survival of the near devastation of the floodplain program in the late 70's resembles the tale of the Phoenix. The program had been reduced to a staff of one! He used collaboration and creativity to secure Federal Emergency Management Agency funding that helped support the rebuilding of the floodplain management program. As the State Coordinator of the National Flood Insurance Program, he expanded staff to provide technical assistance, education and training on flood hazards. Under his tenure, the majority of NFIP communities received their initial Flood Insurance Studies and maps.

For the early 80's we were a lean staff and through Pete's dedication, work ethic and leadership the program was able to gain credibility. His clear focus on a mission to reduce flood risk and protect the floodplain resources resulted in strategic priorities to support comprehensive floodplain management across Ohio. He worked tirelessly on multiple drafts of flood damage reduction legislation that was eventually adopted in the early 90's. Peter promoted standards in excess of the NFIP, open space preservation, zoning and riparian corridor protection as creative ways to protect the floodplain resource in addition to reducing flood damages.

Peter's contributions to floodplain management are not limited to his career activities in the State of Ohio. Since the late 1980's he has been a contributing member of the national Association of State Floodplain Managers by being a member of the Board of Directors, Chair of the Insurance Committee, Regulations Committee and participating in annual conferences. Overall, he has been an effective liaison to FEMA working to achieve comprehensive national floodplain management goals. The Association recognized his contributions last year and awarded Peter the *Louthain Distinguished Service Award*.

Peter G. Finke, Deputy Chief of the Division of Water, has been involved in multiple aspects of floodplain management for his entire career, which spans three decades. It has been my privilege and pleasure to have worked for, with and mentor under Peter in developing my floodplain management

career. In the early years he promoted the program mission and objectives through teaching of floodplain management concepts, flood hazard mitigation strategies, support for the NFIP, and involvement in flood preparedness, warning and recovery. He worked to address the partnership goals of the State of Ohio and FEMA to create the success of the NFIP that we know today. In the late Eighties, he addressed policy and created a vision for a strong state floodplain management effort to compliment the strengths of the NFIP and national strategies for flood loss reduction. Throughout the Nineties and into this millennium, he has capitalized on his administrative position in the state and his national committee chairmanship to promote legislation and initiatives that reach the broad goals of reducing risk and promoting the natural benefit and function of the floodplain.

As we move forward in carrying out the plans that have been made, I have a quiet confidence that Pete Finke, even in retirement, will never be more than a letter, email or phone call away. I am fortunate to have worked with such a competent and committed individual; and grateful for the opportunity before me as a program manager and state coordinator following in the footsteps of a leader who created a floodplain management vision and established the credibility to make it happen!

Peter and his wife Mary are looking forward to more time for travel and each other. His immediate plans include catching-up on all the *to do's* around the house! Eventually, they may relocate to be closer to his son and daughter-in-law. He is also perfecting all the skills that grandfather's need...just in case! Please join the Division of Water staff in wishing Peter a happy and healthy retirement.



Best Wishes Peter, and remember, you're still part of the group.

## Floodplain Management in Ohio Statewide Conference 2001

BY ALICIA SILVERIO, CFM,  
ENVIRONMENTAL SPECIALIST  
DIVISION OF WATER

On August 29<sup>th</sup> and 30<sup>th</sup>, the Ohio Department of Natural Resources' (ODNR) Floodplain Management Program, in partnership with the Ohio Floodplain Management Association (OFMA), and the Federal Emergency Management Agency (FEMA), coordinated *Floodplain Management in Ohio – Statewide Conference 2001*. The conference was again held at the Ramada Plaza Hotel and Conference Center in Columbus, Ohio where over 187 individuals attended the two-day training. Registrants primarily consisted of community floodplain administrators and other local officials, in addition to federal and state government officials, and representatives of the private sector. Twenty sponsors and exhibitors participated in the event [See *Thanks article on page 4*].

The 2001 conference featured keynote speakers Mike Buckley, P.E., Technical Services Division Director (Federal Emergency Management Agency) and Larry Larson, CFM, Executive Director (Association of State Floodplain Managers), who addressed FEMA's Map Modernization initiative and "No Adverse Impact", respectively. Concurrent sessions in "Basic Floodplain Management", "Advanced Floodplain Management", and "Engineering in Floodplain Management" highlighted elements and strategies of comprehensive floodplain management, information on those topics, and how to implement such practices within individual communities.

The ASFPM's Certified Floodplain Manager (CFM) Exam was also administered to twelve conference registrants at *Floodplain Management in Ohio – Statewide Conference 2001*. The CFM is a nationally recognized examination devised to further professional development as well as promote continuing education amongst those employed within the floodplain management discipline. *Floodplain Management in Ohio – Statewide Conference 2001* has been allocated twelve Continuing Education Credits (CECs)

(six per day) that can be applied toward maintaining CFM certification. The conference was also given four hours of continuing education for all classes of certification from the Ohio Board of Building Standards.

During the 2001 conference, OFMA presented four awards to acknowledge several individuals and an organization that exemplify leadership in the field of floodplain management. Awards included "Floodplain Administrator of the Year", "Award for Innovation in Floodplain Management", "Peter G. Finke Award for Most Valuable Contribution to Floodplain Management", and the "Distinguished Member Service Award". [See the article below.]

Overall, the conference was well-received by those who attended and provided comments. ODNR's Floodplain Management Program and OFMA welcome any additional comments or suggestions regarding the conference that you may still wish to offer. Please forward any remaining survey forms or remarks to:

Ohio Department of Natural Resources  
Division of Water,  
Floodplain Management Program  
1939 Fountain Square Drive, Building E-3  
Columbus, OH 43224-1385

If any persons did not receive conference flyer for the 2001 Statewide Conference directly would like to be notified of any 2002 statewide floodplain conference event, please contact ODNR at 614-265-6750. 

## And the Award Goes to.....

BY RAY SEBASTIAN, PRESIDENT  
OFMA, CBO CLERMONT COUNTY

In an effort to recognize individuals and organizations that exemplify leadership in the field of floodplain management, OFMA developed four awards that were presented at *Floodplain Management in Ohio – Statewide Conference 2001*. The 2001 award recipients were selected by the Conference Planning Committee according to specific criteria. The awards and recipients presented at the conference were:

**Floodplain Administrator of the Year - Ray Sebastian (Clermont County)** This award was designed to honor an individual whose contributions have resulted in an outstanding local program or activity for comprehensive floodplain management.

**Award for Innovation in Floodplain Management - Chagrin River Watershed Partners** This distinction was intended to recognize those who have developed and applied an approach that is "outside of the box." Promotion of flood loss reduction, stewardship of valuable flood-plain resources, economic sustainability and quality improvement may be elements of programs, projects, publications and activities nominated for this award.



Peter receiving one of many awards at the State Floodplain Conference

**The Peter G. Finke Award for Most Valuable Contribution to Floodplain Management - Peter G. Finke** This honor was established as a tribute to Peter G. Finke in his distinguished service and leadership of the Ohio Floodplain Management Program for three decades. Peter utilized collaboration and creativity throughout his career and drew strength from his personal dedication to create a statewide floodplain management program that improves the quality of life for Ohioans present and future. He has also been an integral part of developing the national policy on floodplain management.

**Distinguished Member Service Award –Jerry Brems, Licking County Planning Director (Past OFMA President) and Doug Johnson, Chief Engineer for the Miami Conservancy District (Past OFMA President)**

This award was established to recognize a member of OFMA, whose outstanding contribution has furthered the organization's goals and objectives. The nominee must have made a significant contribution through their

leadership, dedication, creativity or collaboration to improve floodplain management in accordance with the OFMA purpose and objectives.

OFMA is currently accepting nominations for the 2002 OFMA Recognition Awards. Deadline for submission is May 1<sup>st</sup>, 2002. For criteria, application forms, or more information, please call 614-265-6750 or email: [cindy.crecelius@dnr.state.oh.us](mailto:cindy.crecelius@dnr.state.oh.us). 

## A Special Thanks



BY ALICIA SILVERIO, CFM,  
ENVIRONMENTAL SPECIALIST  
DIVISION OF WATER

Now that the *Floodplain Management in Ohio – Statewide Conference 2001* has taken place, I've had a chance to reflect and consider how much work was required throughout the ten months prior to plan and coordinate the two-day conference. As the Conference Chair, I can say that the success of the 2001 Statewide Conference was based upon the cooperative efforts of all who were willing to get involved. In turn, I must give credit where credit is due and thank all those who provided assistance in the organization of this conference. I would like to recognize:

- the **2001 CONFERENCE PLANNING COMMITTEE MEMBERS**, for traveling from even the vast reaches of Ohio just to make preparations (as well as eat donuts and bagels) for the conference. These dedicated individuals, [**Chad Berginnis** (ODNR–Floodplain Management Program), **Doug Cade** (Lawrence County Floodplain Management), **Cynthia Crecelius** (ODNR–Floodplain Management Program), **Jake Greuey** (Kemron Environmental Services), **Miles Hebert** (EMH&T), **Kari Ann Mackenbach** (FMSM Engineers), **Mary Sampsel** (Union County Engineer's Department), and **Gary Ziegler** (City of Findlay Development Services Department)], truly made planning the conference a pleasure.

- **RAY SEBASTIAN** (Clermont County Building Department), for leading the conference with much acumen and consideration.

- the **SPONSORS**, for providing financial support for the conference. These sponsors [**Burgess & Niple, Limited, DLZ, Evans, Mechwart, Hambleton & Tilton Inc., (EMH&T), Fuller, Mossbarger, Scott & May Engineers (FMSM), Miami Conservancy District (MCD), PBS&J, and Thermocon**] not only were delightful to work with, but also demonstrated the utmost professionalism.

- the **CONFERENCE SPEAKERS**, for contributing their time and expertise in an effort to promote wise and effective floodplain management throughout Ohio.

- the **EXHIBITORS**, Association of State Floodplain Managers (ASFPM), Building Officials & Code Administrators International (BOCA), Federal Emergency Management Agency (FEMA), Franklin County Soil & Water Conservation District, Insurance Services Office (ISO), Mid-Ohio Regional Planning Commission (MORPC), Ohio Emergency Management Agency (OEMA), Ohio Department of Natural Resources–Floodplain Management Program (ODNR-FMP), Ohio Department of Natural Resources–Division of Natural Areas & Preserves (ODNR-DNAP), Ohio Environmental Protection Agency (OEPA), Ohio Floodplain Management Association (OFMA), United States Geological Survey (USGS), Water Management Association of Ohio (WMAO), for introducing their programs and services to conference attendees so that each community could examine opportunities to better their local floodplain management.

- the **CONFERENCE ATTENDEES**, for taking time out of their hectic daily schedules to learn how to implement and improve flood damage prevention throughout their communities.

Thanks so much to all of you. You made planning the conference a wonderful experience. Hope to see all of you again next year!!! 



## A Call for Involvement...



BY **MARY SAMPSEL, P.E.**,  
ASSISTANT ENGINEER – UNION COUNTY

The Ohio Floodplain Management Association (OFMA) needs more active members in order to grow and achieve its mission. Why would you want to join and participate in this organization and what will you get out of it??

I have personally been involved in OFMA for the last 5 years and think it is a very worthwhile organization. Here are my top ten reasons why anyone involved in land use planning, building regulations, zoning, environmental regulations, citizen drainage complaints and emergency management planning would want to join:

1. OFMA provides networking opportunities with other Floodplain Managers that have had to deal with flooding events. Almost every county in Ohio has had a flood event – will your community know how to respond?
2. OFMA has in the past two years planned the annual statewide Floodplain Management conferences. The Statewide conference is a comprehensive two-day event that provides an excellent opportunity to learn more about Floodplain Management. If this is to continue we need other OFMA members to accept Board positions and lead in this planning effort.
3. OFMA performs community outreach education programs. Our organization “takes the show on the road” by doing one-day workshops in different regions of the state. OFMA membership dues (through WMAO) help pay for this activity.
4. OFMA membership needs to grow in numbers and activities if we are to reach our goals of community awareness, professional growth, improved regulations and educational training opportunities.

5. OFMA members exchange information about floodplain development permitting and enforcement problems. This day-to-day problem solving is a support network for those administering the flood hazard reduction regulations adopted by the community.
6. OFMA takes an active position on legislative issues that arise. For example, last year strongly advocated a proposed Federal budget appropriation that would improve floodplain mapping.
7. OFMA members can develop consensus on how floodplain regulations can be strengthened to improve a community's sustainability.
8. Interest in watershed protection, land use planning and open space, GIS mapping, building codes and flood damage, subdivision development adjacent to water ways and emergency management planning has increased statewide. Engineers, planners, environmentalists and building officials should all be active OFMA members.
9. OFMA administers the Certified Floodplain Managers exam for anyone interested in obtaining this certification. This national exam recognizes the professional expertise that Floodplain Managers need to have to effectively perform their duties.
10. OFMA members get reduced rates for conference registrations.

If you have questions about OFMA or suggestions for our Board, feel free to contact me at 937-645-3132 or by email [msampsel@co.union.oh.us](mailto:msampsel@co.union.oh.us).



## 2002 Statewide Floodplain Management Conference

**Be part of the Conference  
Planning Committee...**

BY ALICIA SILVERIO, CFM,  
ENVIRONMENTAL SPECIALIST  
DIVISION OF WATER

Would you like to join us in planning the 2002 Statewide Floodplain Management Conference? Please contact Alicia Silverio by phone at 614-265-1006 or by email at: [alicia.silverio@dnr.state.oh.us](mailto:alicia.silverio@dnr.state.oh.us) for more information.

**Want to know more about the 2002  
Statewide Floodplain Management  
Conference?**

Information will be posted on the ODNR, Division of Water website in the future. Visit: <http://www.dnr.state.oh.us/water/>.

### More On Enforcement



“He did it, so why can't I?”  
Recovery in Manchester

BY CORNELIA M. DETTMER, M.D.,  
PH.D., MAYOR OF MANCHESTER

When Christopher Thoms asked me to write an article about our floodplain management experiences for *The Antediluvian*, I readily agreed as an opportunity to review what has happened here.

Manchester is a struggling Appalachian community of 2,003 people. Unfortunately in 1791, the founding father located the civilian fort in the middle of a floodplain. It rotted away in a decade or so, as have buildings ever since.

In 1997, our flood waters went up past 5<sup>th</sup> Street putting one half of the village under water (50-year flood level). It was after this that we realized we had never really enforced the flood regulations

passed in 1978. The sudden necessity to bring unreceptive persons into compliance with poorly understood regulations resulted in the resignation of the Floodplain Manager. He tried to educate himself to do a proper job but the abuse and lawsuits against the village were too much.

No one wanted this job. I finally volunteered so we would not lose our flood insurance. I thought I was appointed Floodplain Administrator but found it included Zoning Administrator—an equally unpopular job.

My first action was to appoint a Floodplain Commission. Decisions could be discussed and enforcement would be easier if shared among several people. I asked retired, respected members of our community to serve with me and they all accepted (2 retired bankers and a county agricultural agent).

Next we had to be educated as to what we had gotten ourselves into. We attended county and state Floodplain Management courses in 1998. Our neighbor down the river, David Kennedy of the award fame [*David was honored with the Larry R. Johnston Memorial Award in 1998 for his floodplain management efforts. Editor*], was extremely helpful in sharing his experiences and visiting. Our other mentor was Christopher Thoms, who still answers our questions and oversees our work.

I typed up our revised Floodplain Regulations (no secretary, but it did help to study every word). The Council promptly passed it.

It then became very apparent that we lacked one major key to proper enforcement of these regulations. We had no first floor elevations on any buildings. The Corps of Engineers did leave orange rings on telephone poles at the 100-year flood level of 520' MSL. They surely looked high in some areas.

A private surveying company came to our rescue and volunteered to do free surveys in our lowest areas. Two weekends gave us several hundred unofficial elevations so we could work with the residents. Of course, *as-built* elevations are required to finish the permits. In the midst of all this activity the village applied for a Flood Hazard Mitigation Grant—two years late but we were trying.

In order to be awarded the grant we had to prove we were enforcing regulations. Mr. Thoms came down to review our efforts and presented us with a report card. I will never forget our score – less than 20 points out of possible 100! About an F, I figured.

We had to address the 63 substantially damaged homes on the FEMA list that had been complied in 1997 mainly by inspectors from elsewhere. All of them were solved or solutions underway by 2000 so our grant could begin.

We Commissioners have concentrated our efforts on making sure all new construction or mobile home placements have proper permits. We revised all our forms as we gained experience. Interestingly, whenever a new home appears, villagers call us to make sure permits were issued. We are all policing the area and it is hard to slip in on us.

Since we Commissioners have all served the public before, we continue to be user-friendly. We take turns dealing with particularly abusive persons and do inspections together. This has been helpful in keeping our composure. Every Friday morning we meet to discuss new requests, review progress, and follow-up on incomplete permits. We divide up the tasks for the week. We did not grant a variance until this past summer. We have cited several non-responders into the Magistrates Court after all efforts failed to resolve an issue. We are very patient and frequently have gotten cooperation by just politely pestering people.

We have been challenged and the first test case started on June 20, 1999. A young man placed a mobile home in the lowest floodplain area of the village. I received several phone calls alerting me to the situation so I went down on a Sunday to request he get a permit. My *Encounter Form* notes are classic: 1) he has lived here 40 years and it has always looked awful 2) other people are out of compliance 3) he had flood insurance so it was o.k. 4) he would get a lawyer (I said I would be glad to speak with his attorney). We settled on his raising up 3 blocks now and getting a permit the following week. He would continue to elevate as he got the money. In July, he authorized an elevation survey (which we eventually had to pay for) that showed the grade level at the site to be

510.5' MSL so he needed to elevate a total of ten feet. He had only gotten to six feet and refused to go any higher.

Multiple visits had no effect and he never appeared for a permit. On February 28, 2000 a citation was prepared for him but could not be served because he was in jail. He finally came to court May 8 and found guilty with a fine of \$100 a day imposed beginning June 13 if he had not taken action. This was one year later but I said we were patient and feeling our way.

Of course he did nothing so on his court appearance July 10 his fine was made retroactive to May 8. The fine finally reached \$16,000 but we did not really want to repossess his mobile home. Then one day he moved out of the floodplain. And he did not apply for a permit for this move. However with a few persuasive visits he did come in and get a permit and the judge canceled his fine. We have not had any further trouble since.

Other cases, after this, moved along much more swiftly.

In reviewing our experiences, my “boys” and I felt we had learned several important lessons.

- 1) We acknowledge errors from the past but now enforce the regulations properly (we needed to comprehend the complexity of this task).
- 2) All new permits issued are temporary with no occupancy until regulations are met.
- 3) Enforcement is by meeting and talking with persons in a non-threatening manner. We respect everyone.
- 4) If no action is obtained, then we progress to a letter with a DEADLINE.
- 5) Final step is a citation where one must have a cooperative Magistrate, plus, well-documented cases with *Encounter Forms* and letters.

And in your dreams you can always hear:

*He did it, so why can't I?*



## Floodplain Management Program's GIS Strategy

BY DARLENE M. MAGOLD, GIMS,  
DIVISION OF WATER

Geographic Information System (GIS) is a tool used to create, analyze and compare spatial and statistical relationships among data with a location and a value through the use of advanced computer technology. One of the main goals of the Department of Natural Resources Floodplain Management Program is to compile a GIS database in order to provide better and more efficient services and technical assistance to support floodplain management activities. Numerous applications such as hazard mitigation, identifying structures impacted by potential flooding and hydraulic modeling are included in this GIS endeavor.

ODNR is very interested in what local communities have done to develop GIS data. Please feel free to contact me with questions about the GIS program or information of GIS data in your community. I look forward to hearing any ideas your community may have to offer. 

## Marking High Water After Flood Events

BY MICHAEL K. GEASE,  
SENIOR ENVIRONMENTAL SPECIALIST  
DIVISION OF WATER

For many Ohio communities, Flood Insurance Studies prepared for the National Flood Insurance Program (NFIP) provide detailed 100-year “base flood” elevations and other data utilized for sound floodplain management and the protection of new or substantially improved structures. Studies performed by federal agencies such as the U.S. Army Corps of Engineers and the Natural Resources Conservation Service provide additional sources of floodplain information. For many streams,

however, detailed base flood elevation data has not been developed. The lack of this information contributes to uncertainty in assessing the flood risk to property owners and communities.

One method of obtaining additional information is to capture the elevation of floodwaters immediately following the flood event, usually within 48 hours after the water recedes. Using various flood level indicators such as mud lines on building walls, seed lines on trees, and debris lines on roads or other features, these elevations can be “flagged” or marked, then later surveyed in to establish the actual vertical elevation. The reliability of high water marks can be affected by wave or current wash, additional rainfall which may obliterate seed lines, several flood peaks, etc. Therefore, locating high water marks should ideally be conducted by qualified personnel such as the community or County Engineer. When valid high water marks are established, the data is invaluable after a flood for subsequent mapping of the flood’s area extent, estimating a flood protection elevation where no other data is available, and for calibrating the flood event to known data sources such as stream gage records. The ODNR Division of Water recognizes high water marking as a priority and conducts limited high water marking activities in conjunction with large flood events, as resources are available. Historical flood profiles and high water mark surveys have been established by the Division of Water following floods in 1959, 1987, 1992, 1995, 1997, and 1998. During the ODNR Division of Water’s strategic planning initiative in 1997-98, the need to establish and support a locally based high water marking capability was identified.

The following technical paper introduces the concept and basic techniques of high water marking. It is reprinted herein from *Techniques of Water Resources Investigations of the United States Geological Survey*, 1967. Book 3, Chapter A1, *General Field and Office Procedures for Indirect Measurements*, was authored by M.A. Benson and T. Dalrymple. For more information about establishing high water marks after a flood, please contact the ODNR Division of Water at (614) 265-6750.



## High-Water Marks

High-water marks are the evidence of the highest stage reached by the flood. There are many different types of marks, and the proper identification of them is that part of the work that requires the most experience. For this reason the most experienced man in the field party should act as rodman and locate the high-water marks.

High-water marks tend to disappear rapidly after the flood peak, particularly in humid regions where rain is frequent. For this reason start the work of surveying as soon as possible after the peak. If enough field parties are not available, locating the high-water marks at the desired sites before making the complete surveys may be worthwhile. Identify the marks by means of stakes, cloth tags, paint, paint sticks, nails, or crayon. Make field sketches showing the approximate locations of these marks for the benefit of the survey party. Because it is difficult to stake out sufficient marks in this manner, the field party should attempt to survey all additional marks necessary to define the profiles well.

Locate many high-water marks on both banks through the reach and for a considerable distance above and below, in order to aid in interpretation of the profiles. The slope as determined by these marks is probably very nearly parallel to that of the water surface prevailing at the time of the crest stage.

Select high-water marks on surfaces parallel to the line of flow so that they represent the water surface and not the energy grade line of the stream. However, there may be times when ponded elevations representing the total energy head are desirable, such as in dam, bridge, or culvert computations. High-water marks on the ground where wave action and runup from surge are at a minimum are generally preferable to those in bushes and trees as defined by debris which has been carried up, by wave action or the velocity of the current, to a level above the prevailing water surface. Even along the banks, the

upstream sides of projections into the stream will tend to show higher marks because of runup or velocity-head recovery, whereas embayments may have lower elevations. Under such conditions, obtaining of more closely spaced marks is advisable, to show the shape of the water’s edge and aid in interpretation.

## Surge

The effect of surge on the high-water marks found on the banks is an important point to be considered. Observation and photographs of floodflow in natural channels show that, although there may be extensive wave action in the middle of a fast-flowing stream, at the sides velocities are low and the water surface quiet. Although there undoubtedly is some effect from surge, the high-water marks should be used as found and no adjustments attempted for surge. Any adjustments would necessarily be subjective and would lead to questionable results. This is justified by the fact that roughness values as determined from “verification” studies are determined from high-water marks on the banks, and any effect of surge is contained in the  $n$  values determined; if similar  $n$  values were applied for like conditions using the same methods, then the effect of surge would be minimized.

## Identification & rating of high-water marks

In the field notes, describe the type of high-water mark, such as *drift on bank*, *wash line*, *drift on upstream side of tree*. Also rate each mark as *excellent*, *good*, *fair*, or *poor*. All this information will help in interpreting the high-water profile.

## Types of high-water marks

Many kinds of material which float, chiefly vegetative, are left stranded at the high-water line (and at lower elevations) when the water subsides. The finer material produces more definite and better marks and is apt to represent the highest elevation that the water attained than would some scattered clumps of large drift. Leaves or cornstalks are apt to become waterlogged, and at the very edge in slow velocities they will not rise with a slight rise of the water surface. In this manner, a mound of material, sometimes a foot or more in height, will form at the edge of the channel. Where this occurs, the elevation found by holding rod on the top of the mound—

would be the proper high-water elevation if the material is consolidated; if the material is loose, the shoreward toe would be the correct elevation.

Much drift usually will be found on bushes or trees within the channel. Such marks are not generally as dependable as those on the banks. In swift water, varying amounts of pileup due to velocity will affect the marks at the upstream side of such objects. Marks at the downstream sides of large objects may be lower than normal. Brush in fast velocities often will be bent downstream by the flow, and drift will be caught on the upper limbs. When the velocities slow down, the brush becomes erect once more, and the drift will appear to be at an elevation much higher than that of the actual water surface. In quiet water on overflow plains, the highest drift in brush or trees may be reliable.

Often the small seeds of various plants will provide excellent high-water marks, remaining in the crevices of bark or in the cracks in fence posts or utility poles. The highest of such particles should be used. At times, seeds will adhere to smooth surfaces and encircle trees, poles, metal posts, or guy wires. When present, seeds are an excellent source of high-water data.

In arid regions, or where sandy soil or steepness of banks prevent vegetative growth, the water surface may lap against bare banks. Soil will be washed away by the moving water and under some conditions will show "wash lines" which may be reliable high-water indicators. Good marks are indicators by the straightness of the top of the wash line. Where the bank is steep or the soil unstable, the material may slough to elevations above the water surface. This condition may be recognized by the uneven ragged line at the top edge of the washing—such marks should be avoided. Usually wash lines are poor.

Water carrying mud or silt will at times leave easily recognizable lines along banks, on trees, brush, rocks, and buildings. If there is only a slight difference in color, the mud line may be more readily visible from a distance.

Foam lines are common bridge abutments, wingwalls, riprap, poles, and trees. They may be affected by velocity head pileup.

Buildings within the floodplain should be investigated; they sometimes are an

excellent source of high-water marks. Even relatively clean water will leave stain marks within buildings. Excellent marks may be found on windowpanes or screens. Use care to select marks that are not affected by velocity head, as are marks on the upstream side of buildings in an area where velocities were high. The exposure of floodwater entrances into buildings should be noted in order to judge drawdown or pileup.

High-water marks on snow are not reliable. The flood debris may be deposited on snow which partially melts before a survey is made, leaving marks at a false elevation.

Even though high-water marks around houses have been cleaned up or destroyed by rain, valuable information may be available from residents of the flood area. The information is usually reliable where the water has come into a dwelling place, particularly if the family remained there at the time or returned shortly after. Information about flood heights away from dwellings, such as on trees, fences, or sloping ground, are frequently not reliable, particularly if much time has elapsed or the facts are secondhand. All such data should be confirmed independently, if possible. Photographs taken at time of flood crest by local residents may be helpful in guiding the search for flood-marks. 🔥

## **Plan – Prepare – Protect ... New Trends in Floodplain Management, 2001**

BY CYNTHIA J. CRECELIUS, CFM,  
PROGRAM MANAGER, DIVISION OF WATER

Fourteen Ohioans were among the nation's flood protection experts at the 25<sup>th</sup> annual conference of the Association of State Floodplain Managers (ASFPM) in Charlotte, North Carolina, June 3 – 8, 2001. Ohio representatives included: four local officials, four consultants, one local watershed council member and five state officials. The ASFPM celebrated a commitment of 25 years of work toward reducing the flood losses of our nation. Larry Larson, Executive Director, reflected upon the accomplishments that began with fewer than 20 members of an organization now representing 4000 floodplain management practitioners, including leading flood hazard

management experts throughout the world.

The theme this year, *Plan, Prepare, Protect ...New Trends In Floodplain Management, 2001* attracted over 700 government and private professionals all sharing their techniques, experiences and tools for mitigating against the effects of flooding. The conference format included an expanded technical program with hands-on workshops and field tours to demonstrate the concepts. Several focused breakout sessions and networking forums were interspersed with the plenary speakers and technical training to provide a comprehensive experience for the attendees. A record number of Exhibitors showcased the latest in hardware and software technology; flood mitigation products, and successful mitigation projects. The expanded conference format, with an emphasis on the technical training, was a direct response to support the Certified Floodplain Manager continuing education need.

The technical program tracks covered eight major areas; community initiatives to balance flood risk and sustainability needs, multiple-objective planning, technology trends, coastal and riverine management successes, National Flood Insurance Program, mitigation planning, mapping and engineering for floodplains, and community education / outreach. A wide scope of issues were covered, you should visit the ASFPM website at [www.floods.org](http://www.floods.org) for a review of the presentations / presenters in each track.

The NFIP track was dedicated to discussion of the new administration's priorities and the reorganization that has occurred. The Mitigation Directorate has been combined with the Federal Insurance Administration. This is similar to the organization prior to the Clinton administration. Priorities will include implementing the provisions of the Disaster Mitigation Act of 2000 (Public Law 106-390, October 30, 2000), and reducing the number of *repetitive loss properties* across the nation.

The Disaster Mitigation Act will focus on new selection criteria and procedures that local and state governments will have to satisfy in order to maintain eligibility for pre-disaster and post-disaster mitigation funds. In short, the state and local governments will need to have mitigation plans before the flood to

ensure that the projects and actions taken during flood recovery are cost beneficial and effective at reducing future risk. There is more emphasis, from the national perspective, to have solutions that reduce multiple risks. Since Ohio does not have strong planning mandates and many communities do not have comprehensive plans, this change in focus will impact local communities. The Division of Water will be working to assist in preparing local communities for flood mitigation planning to maintain our competitive status for federal mitigation assistance.

Repetitive loss properties (those properties meeting one or more of the following criteria: four or more losses of at least \$1000 each; two losses in a ten-year period, that in aggregate, equal or exceed the current value of the building; or three or more losses that, in aggregate, equal or exceed the current value of the building) will continue to be a high priority for FEMA. Mitigation funds and projects will be directed to eliminate as many repetitive loss properties as possible. Ohio communities have 161 target repetitive loss properties that as of December 2000, resulted in nearly \$7.5 million. Nearly 90 of these properties are in the 100-year flood hazard area. Gloria Glens Park and Chippewa Lake have the highest concentration of repetitive loss properties.

Throughout this year's conference, the ASFPM further developed the *No Adverse Impact* initiative introduced at last year's annual conference. The approach is a shift from...*the techniques and standards used for floodprone development to how adverse impact resulting from those land use changes can be planned for and mitigated.* ...*A proposed new approach to floodplain management, if properly implemented, can protect private property and still allow society to take account of the full suite of benefits provided by floodplains. This new approach, called a "no adverse impact policy," would require those who alter flooding conditions to mitigate the impact their actions have on individuals and adjacent communities. It is essentially a "do no harm" policy that will significantly decrease the creation of new flood damage...*

Division of Water staff have been fielding questions from Ohio communities concerning their desires to do more than the minimum NFIP standards. The

*No Adverse Impact* strategies and the goals of many local communities may be compatible. There will be more on the *No Adverse Impact* concept at the **Floodplain Management In Ohio – Statewide Conference, August 2001.**

Overall, the Ohio representatives noted that our local and state program initiatives in water resource management and floodplains are headed in the right direction! Ohio local official's shared their expertise and talent in discussing NFIP compliance, and presenting on a river corridor planning success. The Ohio consultants were benchmarking their products, services and technologies with the "latest and greatest" across the nation. Our state staff was also benchmarking to confirm that our strategic goals of incorporating better technology and building strong local capability, are key to reducing flood losses and protecting floodplain resources.

The host State of North Carolina demonstrated how to put all the pieces together and showcased several local projects that we all learned from. If you have not attended an Association of State Floodplain Manager's Annual Conference – you really should consider it! Next year's event will be hosted in Phoenix, AZ from June 23-28, 2002. The theme will be "Breaking the Cycle of Repetitive Flood Loss." 

[The following article is a reprint of **Final Rule on Letters of Map Revision Published from Flood News for Michigan Floodplain Managers, Summer 2001.** The article has been modified for Ohio Floodplain Managers.]

## LOMR-f



BY **GEORGE HOSEK,**  
LAND AND WATER MANAGEMENT  
DIVISION, MICHIGAN DEPARTMENT  
OF ENVIRONMENTAL QUALITY

The Federal Emergency Management Agency (FEMA) on May 4, 2001, published its revised final rule dealing with Letters of Map Revision based on fill (LOMR-f). It is expected that these new rules will have a profound effect on

communities participating in the National Flood Insurance Program (NFIP) and the usual practices of the land development industry.

The old rules were changed to end confusion and the promoting of unwise development in floodplains. Under the old rules, land within the floodplain could be filled and raised above the base (one-percent chance or 100-year) flood elevation (BFE) and an application could be filed with the FEMA to have the filled land removed from the floodplain. Once that land was removed from the mapped floodplain, the NFIP floodplain management regulations no longer applied; and the required purchase of flood insurance connected with a federally regulated, supervised, or insured mortgage also disappeared; thus, structures could be built at-risk with their lowest floors (including basements) below the BFE. The revised final rule discourages this practice and empowers local governments to make decisions to assure existing and proposed structures in and near floodplains are reasonably safe from flooding.

The new rule more closely links the flood hazard identification process (mapping) with existing floodplain management requirements by mandating that minimum floodplain management requirements be met before land (or structures) can be removed from a FEMA-mapped floodplain.

FEMA now requires a community to sign a form acknowledging that a map revision request has been made and that all applicable floodplain management requirements have been met. FEMA will use those forms as its assurance that the structure(s) or filled area(s) are and will remain reasonably safe from flooding, a long-standing minimum floodplain management requirement. The instructions for the forms have been revised to reference the new rule and to more explicitly state the meaning of the local official's signature.

Specifically, the crucial revisions are found at **44 CFR Part 65.5 (a) (4) and (5)**, as follows:

(4) Written assurance by the participating community that they have complied with the appropriate minimum floodplain management requirements under §60.3. This includes the require-

ments that:

i) Existing residential structures built in the Special Flood Hazard Area (SFHA) have their lowest floor elevated to or above the base flood;

ii) The participating community has determined that the land and any existing or proposed structures to be removed from the SFHA are *reasonably safe* from flooding, and that they have on file, available upon request by FEMA, all supporting analyses and documentation used to make that determination;

iii) The participating community, has issued permits for all existing and proposed construction or other development; and

iv) All necessary permits have been received from those governmental agencies where approval is required by federal, state, or local, law.

(5) If the community cannot assure that it has complied with the appropriate minimum floodplain management requirements under §60.3, of this chapter, the map revision request will be deferred until the community remedies all violations to the maximum extent possible through coordination with the FEMA. Once the remedies are in place, and the community assures that the land and structures are *reasonably safe* from flooding we will process a revision to the SFHA using the criteria set forth in §65-5;(a). The community must maintain on file, and make available upon request by the FEMA; all supporting analyses and documentation used in determining that the land or structures are *reasonably safe* from flooding.

It is clear from these revisions that local communities will have to change past practices and that developers that fill parcels of floodplain and later build structures with basements below the BFE are endangering that community's standing in the NFIP. In addition, if communities cannot give assurances that the filled land and structures are *reasonably safe* from flooding; FEMA will consider such projects to be NFIP-violations, thereby, raising the possibility of community probation or suspension. Suspension from the NFIP makes flood insurance unavailable in the community. If the insurance coverage is not available, federally insured, regulated, or

supervised mortgages cannot be obtained.

Community officials' that assure structures are reasonably safe from flooding could be exposing their communities to future lawsuits if the structure does flood.

The new rule can be downloaded at: <http://www.fema.gov/library/lomrAD13.pdf>. You can also download Technical Bulletin 10-01 entitled, *Ensuring that Structures Built on Fill in or Near SFHAs Are Reasonably Safe From Flooding in Accordance with the National Flood Insurance Program*, from: <http://www.fema.gov/mit/tbl001.pdf>.

If you have specific questions about the rule, you may contact a map specialist at 1-877-FEMA-MAP (336-2627) or George Meyers, FMP Engineer at 614-265-6635.

## The Importance of Being Earnest in Adopting Local Floodplain Management Regulations

BY MICHAEL K. GEASE,  
SENIOR ENVIRONMENTAL SPECIALIST  
DIVISION OF WATER

No, this isn't my impression of a theatre critic! This office has recently been contacted by representatives of several Ohio communities that participate in the National Flood Insurance Program (NFIP) to discuss the validity of their local floodplain management regulations. NFIP participant communities must adopt and enforce regulations for development in identified flood hazard areas that meet or exceed the minimum NFIP standards. Apparently in these communities, while reviewing proposed development activities for compliance with the local/NFIP regulations, it came to light that the municipal ordinance or county resolution was not adopted properly and were thus considered "unenforceable." In one instance, a landowner/developer who balked at meeting the local flood protection standards threatened to sue the community on the basis that the ordinance was unconstitutional because it was not published following adoption, as required by state law.

Communities need to be aware that failure to properly adopt and maintain in force NFIP-compliant local floodplain management regulations could lead to serious consequences. First, the Federal Emergency Management Agency (FEMA), which administers the NFIP, could suspend the community's participation in the NFIP. This essentially means that no federal flood insurance, federally backed mortgage loans, or federal disaster assistance would be available. Second, since compliance with the NFIP regulations is also required at the state level under Ohio Revised Code (ORC) 1521.14 (C)(1), state disaster assistance and state financial assistance for projects in floodplains is very limited in non-participating or suspended communities. In addition to adopting new regulations, in most cases, a suspended community must also receive a NFIP Community Assistance Visit conducted by ODNR staff prior to FEMA's reinstatement of the community into the NFIP. FEMA also requires that any violations of the NFIP regulations during community suspension be remedied by the community to the maximum extent practicable as a condition of reinstatement into the NFIP. And, any development that occurs in the floodplain during NFIP suspension will be actuary insurance rated based on its risk once the community rejoins the NFIP, causing increased flood insurance premiums. Finally, communities may incur legal liability as noted in the example above. Thus the failure to properly adopt floodplain management regulations could have serious local political, economic, and social ramifications for flood prone communities.

How to avoid this problem? Communities can ensure the compliance of local regulations by following the legal procedures defined in the ORC. In Ohio, only incorporated municipalities and counties have the full requisite land use authority to participate in the NFIP, although some township governments have adopted floodplain regulations under their zoning powers. For municipalities, the specific legal processes and requirements to adopt floodplain management regulations depend on the land use controls in the community. Ohio municipalities have broad local powers (including zoning) under the *home rule* authority provisions of Article 18, Section 3 of the Ohio Constitution, and ORC Section 713.06. Municipal

governments can also adopt building code regulations as established by home rule authority and ORC Section 715.26. County authority to participate in the NFIP is established under ORC Section 307.85, while counties also have powers to adopt building codes (ORC 307.37) and subdivision regulations. There are a number of communities that have utilized these powers to adopt specific standards for NFIP compliance and sound floodplain management. Many Ohio communities, especially smaller municipalities and counties, have simply adopted the ODNR *Model Special Purpose Flood Damage Prevention Regulations* as stand alone regulations.

As the state coordinating agency for floodplain management and the NFIP, the ODNR, Division of Water Floodplain Management Program provides model regulations and guidance on the flood protection standards necessary to meet NFIP minimum criteria. This office cannot provide legal advice on the constitutionality or procedural validity of adopted local floodplain management regulations. The Division of Water is required to review all adopted floodplain management regulations within 45 days of adoption. Primarily, the Division of Water review ensures the ordinance or resolution meets or exceeds NFIP minimum standards, and is a check to ensure that the copy of legislation provided to ODNR has been properly signed and certified. In all cases of legislative action to adopt floodplain management regulations in compliance with the NFIP, it is critical that communities consult with their legal adviser, *i.e.*, Village Solicitor, City Law Director or Attorney, or County Prosecutor, for guidance on the procedures for compliance with adoption of land use regulations in accordance with state law and community enabling authority. In some very small communities, the cost of such services may seem disproportionate to other community budget needs, but the legal assurance provided by such reviews may prove invaluable in retaining a community's eligibility for the NFIP. Communities should ensure that proposed floodplain management regulations have been thoroughly re-viewed by the community legal adviser prior to adoption and submittal to ODNR and FEMA. For more information or to obtain a copy of the latest ODNR model floodplain regulations, contact the Division of Water at (614) 265-6750.

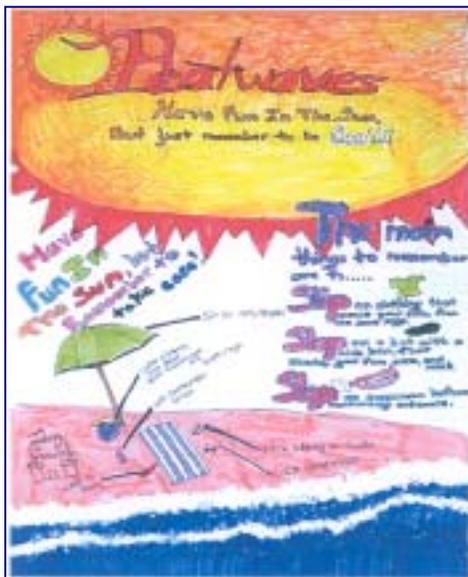


## Severe Weather Safety Awareness

BY CHRISTOPHER M. THOMS, CFM,  
ENVIRONMENTAL SPECIALIST,  
DIVISION OF WATER

For information concerning the upcoming Winter Safety Awareness Week, Nov-ember 11-17, 2001 go to [www.state.oh.us/odps/division/ema/PDFs/Winter2001.pdf](http://www.state.oh.us/odps/division/ema/PDFs/Winter2001.pdf).

**Rebecca Peterson**, a 6th-grader from Saint Brigid School in Xenia, won this year's overall award for her Severe Weather Awareness poster (below). Her poster urges us to, *Slip* on clothing, *Slap* on a hat and *Slop* on sun-screen to protect ourselves from the ill-effects of potentially deadly heat waves.



Statewide winners include **Josh Boesiger** and **Hugh Dresbach** both of Circleville's Salt Creek Elementary, **Ann Burger** of North Bend's St. Jude School, **Caryn Moore** of Winchester's North Adams, **Casandra Picuch** of Cleveland's St. Leo the Great, **Sam Regas** of Canton's Sauder Elementary, and **Brandon Wiggins** of Kingston's Salt Creek Elementary.

Regional winners include **Sondra Anderson** of Creston's Burbank Elementary, **Shane Bianchini** of Wintersville's Elementary, **Corinne Bocci** of Sagamore Hill's St. Barnabas, **John David Botti** of Delaware's Central Ohio Christian, **Michael Carter** of Oak Hill's Oak View Elementary, **Ryan Chambers** of Perrysburg's Luckey Elementary, **Chelsea Griffin** of Sherrodsville's Elementary, **Kelsey Leis** of Union's Salem Christian Academy, **Alex McCutcheon** of

Waterford's Elementary, **Paige Newman** of Peebles' North Adams Elementary, **Calinda Pena** of Fremont's Stamm Elementary, **Emily Rodriguez** of Macedonia's Ledgeview Elementary, **Abby Shepard** of Dayton's Salem Christian Academy, **Sarah Siegrist** of Newark's Madison Elementary, & **Jason Widmer** of Sterling's Elementary.

## Workshop Watch



BY CHRISTOPHER M. THOMS, CFM,  
ENVIRONMENTAL SPECIALIST,  
DIVISION OF WATER

Nearly one hundred conferees participated in the *Flood Loss Reduction Workshop* at this year's statewide floodplain management conference (*see articles page 3*). The participants represented a broad range of experience and expertise with some familiar faces and some new acquaintances.

Each year seems to bring changes—not only of floodplain managers—but also to floodplain management. Some of the latter changes are useful innovations, some merely complications, and some seemingly unnecessary obstacles. The Floodplain Management Program (FMP)-staff seeks to keep abreast (if not always ahead) of these changes in order to assist Ohio floodplain managers with the best preparation to reduce flood risks in Ohio.

As a fundamental part of that preparation, the FMP-staff continues to develop and strengthen a variety of workshops. Our latest workshop component addresses effective flood safety standard enforcement methods and includes an innovative (hopefully useful) mediation method called the *Alternative Violation Remedy Process (AVRP)*. This new component joins the basic *Flood Loss Reduction Workshop*, and *Substantial Damage Workshop* that we regularly offer. We hope to add yet another component (currently under development) dealing with hydraulic and hydrologic engineering concepts.

If you would like to be a host for a workshop in your area or for more information, contact me at (614) 265-6752. We will be happy to answer your questions or provide additional information.



**DIVISION OF WATER**  
**1939 FOUNTAIN SQUARE**  
**COLUMBUS, OHIO 43224**

Bob Taft,  
*Governor*

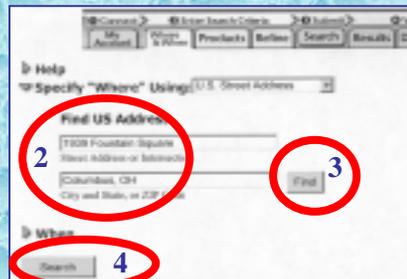
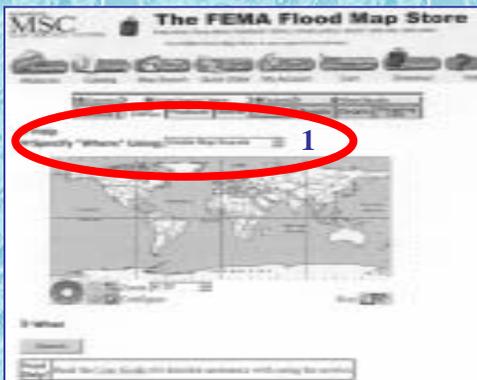
Samuel W. Speck,  
*Director*

James R. Morris,  
*Chief*



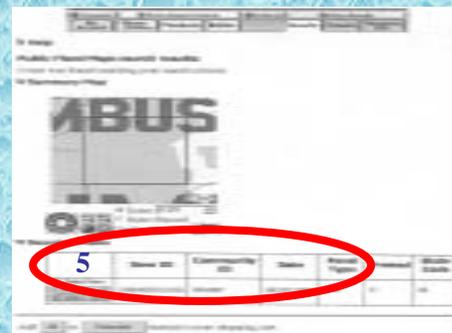
## Find FEMA Floodmaps Fast BY CHRISTOPHER M. THOMS, CFM, ENVIRONMENTAL SPECIALIST, DIVISION OF WATER

Anyone who has an address for a property can perform an on-line search to determine the community ID and panel number. At the *Fema.gov* website, select *National Flood Insurance*, then select *Flood Hazard Mapping*, then select *The FEMA Flood Map Store*.



- 1) Select *U. S. Street Address* from the pull-down menu window that currently shows *Visible Map Bounds*.
- 2) Enter address.
- 3) Select *Find*

- 4) Select *Search*. A location street map appears (not a flood map).
- 5) Scroll below the map to the table.



The last four digits of the *Item ID* form the panel number, the first five numbers are repeated under the *Community ID*, and the date of the map follows. *Panel type* informs you if the map is in the single community (CB) or countywide format (CW).

Print copies can be ordered from the FEMA site or from the toll-free number: (800-358-9616) or—if a photocopy will suffice—those providing the FMP office with the property's panel number can speed our search for the map requested.