



# The Antediluvian

## Ohio's Floodplain Management Newsletter

Volume IV

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Issue 1

**MISSION STATEMENT:** The Mission of Floodplain Management Program is to provide leadership to local governments, state agencies, and interested parties toward cooperative management of Ohio's floodplains to support the reduction of flood damage and the recognition of the floodplain's natural benefit. This mission will be accomplished through technical assistance, public awareness, education, and development/protection standards.

### Digital Q-3 Flood Data

Between a Satellite  
&  
a hard copy



By Chad M. Berginnis, Planner &  
Cynthia J. Crecelius, Supervisor  
Division of Water

Technology continues its rapid advance and the Federal Emergency Management Agency (FEMA) is incorporating many new products, including a Web site, to provide customers with an expanded availability of flood risk data. The Floodplain Management Program staff has varying degrees of capability (both hardware, software) to explore and use the new products; however, we don't want our limitations to stop the Cyberspace elite amongst you from advancing *...to go where no man has gone before.*

We have been receiving more frequent requests from many of you concerning what and where is the digital flood data? The following are excerpts from FEMA fact sheets and letters about the digital products. A quick review of the two basic approaches to structuring spatial data for Geographic Information Systems (GIS) seems appropriate also. Traditionally in GIS, spatial data are structured in raster (grid cell organization) and vector (line and area organization). The FEMA flood data products incorporate both approaches using different data structures (unit area or grid cells and boundary information or lines and areas) based upon the specific need or application of the information.

For example, the FEMA product known as Q3 is developed by scanning the existing paper copy Flood Insurance Rate Map (FIRM) and adding a vectorized flood risk overlay to create a hybridized raster product

that is suitable for both viewing and printing. By itself, a raster product is nothing more than a scanned image that is not pinned to any certain location-it is essentially floating in space. So, a vectorized overlay of flood risk is added to enhance the raster product. The advantage of the vectorized overlay is that it geographically references flood risk data which can then be related to other maps. Another way to visualize this relationship is by thinking of a crude site plan for a structure that only has a drawing of a house. There are no setback lines, lot boundaries, or any other fixed point to measure the site plan from and the information is essentially worthless. This is similar to a pure raster product.

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However, when setback lines, lot boundaries and survey lines are added, the site plan is a much more useful document because the site plan has a very specific location and order. Similarly, the vector data enhances the raster product.

FEMA has digital Flood Insurance Rate Map (FIRM) data in three basic product levels.

**Quality Level 1 (Q1)** includes *Digital Flood Insurance Rate Map* (DFIRM) products. The DFIRM is comprised of all digital data required to create the paper copy FIRM. This includes base map information, graphics, text, shading, and other geographic and graphic data required to create a final paper copy FIRM product to FEMA standards and specifications. *Digital Flood Insurance Rate Map-DLG* (DFIRM-DLG). This product is created by extracting the flood risk thematic data from the DFIRM. The format of this product is the U.S. Geological Survey Digital Line Graph Level Optional format, as described in the FEMA publication *Standards for Digital Flood Insurance Rate Maps*. The DFIRM-DLG does not include base map information, nor does it include graphic data required to create a paper copy FIRM. This product is intended to be the primary means of transferring flood risk data depicted by FIRMS to Geographic Information Systems through public domain data exchange format.

**Quality Level 1 (Q1)** includes **FIRM-DLG**. This product is developed by digitizing and/or scanning and vectorizing the existing paper copy FIRM to create a thematic vector overlay of flood risks. A FIRM-DLG is not tied to a base map, is not used to produce a new version of the paper copy FIRM, and is not subjected to community review. The intent is to duplicate the existing paper copy FIRM and provide users with automated flood risk data that is comparable to what is derived from the paper copy FIRM. Edge-matching errors, overlaps and underlays in coverage, and similar problems are not corrected during the digitizing or scanning.

**Quality Level 3 (Q3)** includes: **Q3 Flood Data** Q3 is developed by scanning and vectorizing the existing paper copy FIRM to create a raster product suitable for viewing or printing, and a thematic vector overlay of flood risks. Q3s are intended to capture all FIRM data in the raster file, but vectorize only certain features from the existing paper copy FIRM. These features include the 100-year and 500-year floodplain boundaries,

Coastal Barrier Resources Act boundaries, political boundaries, FIRM panel neatlines, and 7.5 minute quadrangle neatlines, mappable Letters of Map Change, and may include floodways. Edge-matching errors, overlaps and underlaps in coverage, and similar problems are not corrected during the digitizing or scanning and vectorizing. The paper copy FIRMs from which the vector Q3 Flood Data are extracted contain no horizontal control. Horizontal controlling of these data is typically performed by fitting the vectors to a georeferenced 7.5 minute quadrangle file. Q3 Flood Data are intended to provide users with digital flood-risk data suitable for in/out queries.

The digital product available to the majority of communities will be the Q3 Flood Data. FEMA provides detailed technical information describing the Q3 Flood Data available from FEMA's Map Service Center. The information, including Q3 specifications and data user's guide, is available through the FEMA Home Page on the Internet at: <http://www.fema.gov>.

The Q3 Flood Data were designed to serve the needs of disaster response and recovery activities, and to support flood insurance policy marketing initiatives. Q3 Flood Data may also be used in hazard analysis, risk assessment and floodplain management activities. The data are designed to answer basic in/out queries and questions about the location of the Special Flood Hazard Area, but do not provide Base Flood Elevations. Users must apply considerable care and judgement in applying the product and remember that conversion of FIRMs to a digital format does not improve the engineering quality of the information. The Q3 is NOT the legal or official FIRM document. Flood risk determinations should not be made based upon the general proximity of the special flood hazard area shown on the Q3 Flood Data.

FEMA intends to produce nearly 900 Q3 Flood Data counties. The priority areas include those with the most structures at risk. This criterion means that many areas of Ohio have not been included in FEMA's initial effort to produce digital flood data.

As of January 1997 the following Ohio counties have been converted: Athens, Belmont, Butler, Clermont, Crawford, Cuyahoga, Erie, Fairfield, Franklin, Greene, Hamilton, Hancock, Lake, Licking, Lucas, Medina, Meigs, Montgomery, Ottawa, Stark, Summit, Trumbull, and Washington. FEMA intends to produce the Q3 in three data formats that are useable with desk-top mapping and Geographic Information

Systems software packages. The formats include: Digital Line Graph (DLG), Arc/Info®, and MapInfo®. Desk-top mapping or Geographic Information System software is needed to use the data. The Q3 Flood Data are scheduled for a biannual review to determine the need for revisions and/or updates.

The Q3 will be available on CD-ROMs from the FEMA Map Service Center as file become available. FEMA also plans to make the Q3 Flood Data available for download via the Internet. There will be a nominal cost to acquire data. You may contact the Map Service Center or visit their Home Page with your comments, questions or inquiries about the availability of data at the addresses below.

**FEMA Map Service Center  
P.O. Box 1038  
Jessup, MD 20794-1038**

Phone: **1-800-358-9616**

Fax: **1-800-358-9620**

Internet: <http://www.fema.gov>

## New Flood Insurance Coverage Coming

By Peter G. Finke, Administrator  
Division of Water

The Federal Emergency Management Agency (FEMA) is getting ready to implement new insurance coverage that would reimburse a policy holder for the additional or "consequential" costs of rebuilding a flood damaged structure to comply with local floodplain management requirements. Currently a flood insurance policy reimburses property owners only for the cost of repairing actual flood damages. The Increased Cost of Construction (ICC), as the new coverage is called, would cover the additional cost of elevating or floodproofing a structure to the 100-year flood level, or for demolishing it. The ICC coverage is not optional, but will be included in all new or renewal flood insurance policies written on or after June 1, 1997. This new coverage will result in policy premium increases ranging from \$6 to \$75 annually depending on a structure's flood risk.

Congress authorized FEMA to add the ICC coverage because too many flood damaged properties were not being rebuilt in accordance with local floodplain management regulations. Lack of funds to pay for the

additional costs have often been cited as the reason why many substantially damaged structures were not being rebuilt to the 100-year flood standard. The consequence has been that the same buildings have been flooded over and over again, resulting in high claims payments to FEMA. Congress hopes that the ICC coverage will break the cycle of repeatedly flooded structures. There are several limitations as to who qualifies for ICC coverage. To qualify, the insured's structure must have either 1) sustained a loss of 50% or greater from a single flood event, or 2) sustained two or, more insured losses within a 10-year period, each of which equaled or exceeded 25% of the market value of the structure. Also, FEMA plans to limit the amount of the ICC coverage to \$15,000.

All of Ohio's NFIP-participating Communities would qualify under the 50% or greater damage category, since that standard also triggers compliance with local floodplain management regulations. In order to qualify for the second category, a community must have adopted more stringent floodplain management regulations which specifically require the cumulative tracking of repetitive loss structures for code compliance. Since repetitive loss structures are not addressed in NFIP's minimum floodplain management requirements which most Ohio communities have adopted, a community would first have to amend its existing floodplain management regulations in order to qualify for the 25% damage on two occasions category. FEMA plans to provide model repetitive loss regulations for communities that want to adopt the more stringent requirements.

The final rule for this coverage has not yet been published and there could be further changes in ICC coverage. We will provide an update on the ICC coverage in our next edition of *The Antediluvian*. You may also contact our office at (614) 265-6750 for further information.

## County Offices Work Together To Combat Flooding



*The following article was submitted by Walter Duzny, Director, Mahoning County Emergency Management Agency. Mr. Duzny responded to our request for information about successful local projects that have reduced flood damage. It is encouraging to hear that there are communities who have overcome the obstacles and found the resources to lessen the affects of flooding on their residents.*

Following Mr. Duzny's article is a reprint from the FEMA *Partnerships in Preparedness - A Compendium of Exemplary Practices in Emergency Management* publication. This reprint provides a summary of the project, budget and a follow-up contact. Our thanks to Mahoning County EMA for their responsiveness.

Understandably after a number of summer rains, spring thaws, flooded homes and businesses, and disaster declarations, the Mahoning County Commissioners turned to the Emergency Management Office and provided guidance that would initiate the steps that would deal with the causes of flooding, not the aftermath.

The Board [Commissioners] then went on, by resolution, to form a **Clear Water Task Force** on Flood Strategy whose goals would be to develop both short term and long-term strategies to minimize flooding in the county and to submit a specific action plan for accomplishing the strategies.

The membership consisted of departments such as the Building Inspection, Engineering Department, Sanitary Engineering, Planning Commission, USDA [Soil] Conservation Service, Board of Health, Local Home Builder's Association, and County Soil and Water Conservation District.

The group was chaired by Walter M. Duzny, Director of the Emergency Management Agency, whose role was to gather these individuals together and form a cohesive, dedicated group and keep them focused on the established goals.

A few years later an examination of the action plan developed by the task force shows several of the initiatives completed and the rest underway. Needless to say, effort to control flooding is an ongoing one and certain areas need to be addressed.

Some of the multi-phased concepts and steps to the action plan were controlling<sup>1</sup> cellar back flow flooding. When a major rain event hit the Mahoning valley, one by-product was wastewater back flow in the basement of homes. A program was established locally to assist home owners who were experiencing wastewater backflow by the installation of a gate valve to temporarily close their house lateral from the main wastewater sewer line.

Home owners who demonstrated eligibility are entitled to receive county funds recovering up to half the cost of the installation.

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<sup>1</sup> [Thus] assuring adequate flood control for new developments. Although much of the **Clear Water Task Force** was involved addressing existing flood problems in Mahoning County, an equally important task with the group [was] insuring that flooding concerns are properly addressed and any new development that takes place in the county.

Consequently, the [**Clear Water Task Force**] group played an important role in the review of subdivision regulations. The entire resource group requires a **No Rise** Affidavit of Compliance prior to final endorsement of a major plat and confirming correspondence from the sanitary engineer stating all wastewater lines have been properly installed.<sup>2</sup>

The work accomplished by the **Clear Water Task Force** on flood strategy is generating interest beyond Mahoning County as a first group of its kind in the State of Ohio, the Task Force has received inquiries from other counties in the state who would hope to duplicate its success.

We received formal recognition from the Federal Emergency Management Agency (FEMA) as an inclusion to the FEMA publication exemplary programs and practices in emergency management that became a national publication as well as recognition by the Insurance Institute for property loss reduction for the Task Force role in developing mitigation programs.

One other group that was instrumental in the development and the direction provided was the Home Builder's Association [HBA] of Mahoning Valley who as members of the Task Force participated in the modification of current guidelines and the development of new regulations.

Consequently, their input was valuable in determining the balance between an ideal state and a practical achievable one. Understandably, more stringent regulations have their costs. Of course that cost is passed on to home owners.

The developer hopes to attract those HBA representatives who assisted other Task Force members to arrive at a reasonable compromise to achieve the goal of flood prevention while still keeping the cost within acceptable limits.

Mahoning County Commissioner David Engler summed it up very well. *We wanted representatives from all these different entities to sit at the same table to talk. That was really the breakthrough. We got everyone to understand they were part of the same team and needed to work together and not just in their own individual areas to solve the problem.* 💧

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<sup>2</sup> Mahoning County Regulations include:

A county property maintenance code, which requires property owners to sever the connection between clear water and waste water lines.

The utilization of an urban erosion control specialist who would provide technical assistance in dealing with soil erosion, sedimentation and other drainage concerns.

The development of a drainage criteria manual as an addendum to local subdivision regulations.

# MAHONING COUNTY

## CLEARWATER/FLOOD ACTION PROGRAM

### Contact:

Walter Michael Duzzny,  
Director  
Mahoning County Emergency  
Management  
Market Street  
Youngstown, OH 44503  
Tel: 216-740-2200  
Fax: 216-740-2006

### Program Type:

Use of multidepartmental task force and university engineering students to mitigate clear surface water flooding and water infiltration into sewer lines.

### Target Population:

286,000 people.

### Setting:

Urban and agricultural portions of Mahoning County.

### Project Startup Date:

March 1994.

### Program Description

The long-term goal is to eliminate the infiltration of sewage and surface water flooding of neighborhoods through use of a multidepartmental county task force and development of a corrective action plan for 12 areas of concern. Concerns addressed include the need for installation of sump pumps and television scanning of sewer and storm lines for breaks and ruptures, soil makeup, construction methods, and maintenance programs by the Mahoning County Sanitary Engineer's Department and Mahoning County Engineer's Department.

The corrective action plan identified concerns and developed a strategy detailing timeliness, department responsibilities, and cost factors. Specific drainage plans, subdivision regulations, and other information were generated through in-kind existing staff or resources but became part of the integral corrective plan concept.

Multiphased mitigation through identification of chronic flooding areas was one of the tasks set forth for fiscal year 1995. This task is being accomplished by using Youngstown State University engineering students and the Mahoning County Engineer's Department, as well as the County Board of Health, to initiate an onsite survey of those areas establishing a data base to support additional funding and operational programs.

Interaction between landowners and government for purposes of flood identification and cost sharing was a notable feature of the corrective action plan. This was further expanded by coordination through the Mahoning County Voters Association and development of a "How to Develop" guide.

The strategy was formally adopted by the Board of County Commissioners and political subdivisions, providing a specific focus for the continuation of the task force's recommendations and their implementation.

### Evaluation Information:

Provisions for both internal and external evaluations of the program were included in the corrective action plan. Feedback was channeled through local subdivision townhall meetings and countywide neighborhood gatherings.

### Annual Budget:

\$280,000 (1994); \$200,000 (1995).

### Sources of Funding:

Local Taxes.

## When Is a Flood a Flood?



Reprinted from FEMA's newsletter, *Watermark* Spring/Summer 1995

Under an NFIP flood insurance policy, flooding begins at the moment the insured building is first touched by flood waters associated with a general condition of flooding in the area. To qualify as a general condition of flooding, the flood must affect two or more acres if the water is confined to the lot on which the insured building is located. Also the occurrence must inundate normally dry land.

The *2-acre rule* is found in Article 3, Section C Paragraph 2, of the SFIP Dwelling form, General Property form, and the Residential Condominium Building Association Policy.

The purpose of the *2-acre rule* is to establish criteria for flooding confined to a single premise. One acre is 4,840 square yards. Two acres is a little less than two football fields in size (one football field, without the end zones, is 50 yards by 100 yards or 5,000 square yards).

**It does not matter if the insured owns adjacent properties.** The policy exclusion refers only to the premises on which the property is located. The adjacent properties must be legally-distinct properties regardless of ownership.

**It is not necessary buildings on the adjacent premises be inundated or otherwise damaged by flood.** It is sufficient that there is inundation of normally dry land on the adjacent premises or street.

**It does not matter if the adjacent properties meet the 2-acre rule.** There is no stipulation regarding the size of the adjacent properties which would establish a general condition of flooding. 

FOR ANSWERS TO  
FLOOD INSURANCE  
QUESTIONS  
CALL  
1-800-638-6620

## Floodplain Maps Survey Results



By Michael K. Gease, Senior Planner  
Division of Water

In the Fall 1996 issue of *The Antediluvian* we provided the *Floodplain Maps Survey* to more than 1100 recipients. The results are in! We received 82 responses, for a 7 percent sample. These questions on the accuracy and availability of National Flood Insurance Program (NFIP) flood maps were generated to stimulate discussion and feedback on the maps and map revision needs. The following copy of the Survey provides the number and percent of response to each question (note: not all questions were answered by all of the respondents). Forty-five percent responded that the maps were not accurate (question 1), while 57 percent indicated that the Federal Emergency Management Agency (FEMA) should increase funding for flood maps (question 10).

Unfortunately, FEMA's resources for updating flood maps and *Flood Insurance Studies* are limited. However, communities and property owners have their own opportunities to increase the accuracy of the maps through the NFIP. These procedures are outlined in the FEMA manual, *Appeals, Revisions, and Amendments to Flood Insurance Rate Maps: A Guide for Community Officials*, available free of charge through the Division of Water or by calling the FEMA Publications office at (800) 480-2520 or FAX at (800) 480-6378. When ordering directly through FEMA, use the publication number *FIA-12*. Community officials, developers, and property owners can also revise the maps through FEMA's *Letter of Map Amendment/Letter of Map Revision Process*. Copies of FEMA's Application and Certification forms are available through the Division of Water by calling (614) 265-6750. Technical data and supporting documentation must be provided, and fees may be charged for many types of map changes. 

# Floodplain Maps Survey Results

Total = 82 Respondents

	Responses	Respondents	%
1. Do you believe that your community's NFIP floodplain maps accurately depict the 100-year flood hazard?	Yes	32	39%
	No	37	45%
	Not Sure	13	16%
2. To your knowledge, has your community experienced flooding in areas not identified as Special Flood Hazard Area (all A Zones) on the community map?	Yes	23	28%
	No	57	70%
3. Has your community annexed land since the effective date of the map?	Yes	43	52%
	No	36	44%
4. If you answered yes to #3 above, does the annexation include Special Flood Hazard Area identified on the County map? (43 respondents)	Yes	19	44%
	No	15	35%
	Not Sure	9	21%
5. Are you aware of development activities (building construction, filling, bridge or culvert, etc.) in your community that may have changed the floodplain or stream channel?	Yes	31	38%
	No	42	51%
	Not Sure	8	10%
6. If you answered yes to #5 above, was the map revised by FEMA to reflect the altered floodplain? (31 respondents)	Yes	8	26%
	No	23	74%
7. What is your best estimate of the amount of urbanization that has occurred within the watersheds affecting your community within the past 20 years?	Less than 10%	38	46%
	10-20%	19	23%
	20-30%	9	11%
	more than 30%	9	11%
	unknown	5	6%
8. In your opinion, what are the major issues, problems, or concerns with the accuracy (and availability) of the NFIP maps for your community?	All that apply:		
	a) the map does not accurately depict areas prone to flooding	36	44%
	b) flood levels are exceeding the 100-year flood elevations shown on the map	6	7%
	c) annexations are not shown on <u>any</u> current effective NFIP map	33	40%
	d) multiple, partial revisions to the maps ( <i>only certain map panels affected</i> ) have been printed	8	10%
	e) multiple Letters of Map Revision and/or Amendment have been issued	10	12%
	f) some streams that flood are not identified as flood hazard on the map	16	20%
	g) copies of the maps are not available from FEMA	3	4%
	h) the community needs a restudy of its flood hazards	27	33%
	i) the maps need more information (flood elevations, floodways, street names, etc.)	49	60%
	j) Elevation Reference Marks shown on the maps do not exist in the field	15	18%
	k) Geographic Information System (GIS) technology should be used for the maps	32	39%
	l) the maps are difficult to read and understand	11	13%
	m) the maps should be revised on a countywide or watershed basis	28	34%
n) other	4	5%	
9. In your opinion, would your community be willing to pay part of the cost to update the flood map?	Yes	16	20%
	No	22	27%
	Not Sure	44	54%
10. In your opinion, do you believe that FEMA should increase funding for community flood mapping?	Yes	47	57%
	No	8	10%
	Not Sure	26	32%

## NEW CRS Video Available

The Insurance Services Office (ISO) under the auspices of the Federal Emergency Management Agency has released a new video with brochures describing the community Rating System (CRS). Direct your questions concerning this video to ISO (317) 848 – 2898.

## Additional Considerations in Managing Flood-prone Areas

By Cynthia J. Crecelius, Supervisor  
Division of Water

For the last several issues of this newsletter, we have concentrated on informing communities about the MINIMUM floodplain management responsibilities as a participant in the National Flood Insurance Program (NFIP). During Community Assistance Visits, our planning staff broadens this focus to discuss how your community may amend and strengthen the local flood damage reduction regulations to support a more comprehensive approach to reducing flood damage in your community.

Because of the references provided for many of the minimum NFIP requirements, local floodplain managers are aware that the Code of Federal Regulations (CFR) contains the requirements for NFIP participation. However, did you realize that the CFR also contains suggested criteria for how your community might go beyond the minimum responsibilities to build strong local floodplain management programs? In Subpart A- *Requirements for Flood Plain Management Regulations* of the NFIP, the minimum criteria for land management and use of areas identified as subject to 100-year flooding are established. These standards have also been incorporated into the body of your local floodplain management regulations. However, another section of the NFIP Regulations, Subpart C- *Additional Considerations in Managing Flood-prone, Mudslide, and Flood-Related Erosion-prone Areas* is intended to encourage the formation and

adoption of overall comprehensive management plans for flood-prone, ...areas. As we see stronger federal, state, and local objectives to MITIGATE (or reduce the potential for) flood damage we need new ways to attack the problem. PLANNING to change the repetitive cycle of damage- repair-damage is needed. To build sustainable, reduced-risk communities, we may need to change the way we do things. Before you decide to recover from a flood or expand the community (new development) in the same old way, consider how you might incorporate the following into your flood damage prevention regulations and community development goals.

- Permit only development in flood-prone areas which is (1) appropriate given the probability of flood damage and the need to reduce flood losses, (2) an acceptable social and economic use of the land in relation to the hazard involved, and (3) does not increase the danger to human life.
- Prohibit the installation of nonessential public utilities and facilities in flood-prone areas. Install only public utilities and facilities that have incorporated flood protection standards into their design and construction.
- Preserve flood-prone areas as open space.
- Relocate existing occupants and structures out of the flood-prone areas.
- Acquire the land or development rights for public purpose consistent with a policy to minimize future property losses.
- Prioritize acquisition of structures which are repeatedly flooded.
- Consider the human safety factor in deciding to approve development in or near flood-prone areas.
- Find alternative development sites outside flood-prone areas, to ensure reduced potential for life and property loss, and to protect the natural benefit of open space floodplains.

- Increase public awareness to the flood hazard by disclosing to all interested parties that (1) certain structures are located within flood-prone areas, (2) variances have been granted for certain structures located within the flood-prone area meaning they are subject to greater risk than those meeting flood protection criteria, and (3) flood insurance premium rates applied to new structures built at elevations below the 100-year flood substantially increase as the elevation decreases.
- Consider the adverse effects of continued floodplain development on the existing development. Less floodplain area for storage and flow of flood water may result in higher flood depths and increased velocity of flow.
- Encourage flood proofing to reduce flood damage if a structure must be located in the flood-prone area.
- Utilize flood warning and emergency preparedness plans to reduce the affects of the flood disaster on the community.
- Provide for alternative vehicular access and escape routes when normal routes are blocked or destroyed by flooding. Do not allow developed areas to become isolated islands in flood events.
- Establish minimum flood proofing and access requirements for the critical facilities within the community, such as schools, hospitals, nursing homes, penal institutions, fire and police stations, communications centers, water and sewerage pumping stations, and other public facilities.
- Improve local drainage and stormwater management to control increased runoff so there will not be an increase in flood heights.
- Partner with neighboring communities to solve multiple risks and problems with more resources.
- In reviewing subdivisions require the subdivider to provide complete flood hazard information including floodway delineations when not available from existing data.

- Prohibit any alteration or relocation of a watercourse, except as part of an overall drainage basin plan. In the event of an overall drainage basin plan, provide that the flood carrying capacity within the altered or relocated portion of the watercourse is maintained.
- Require an additional elevation above the 100-year flood elevation for all new construction and substantial improvements to provide an added margin of safety against floods having a magnitude greater than the 100-year, or to compensate for future urban development.
- Require pilings of columns rather than fill, for the elevation of structures within the flood-prone areas, in order to maintain the storage capacity of the floodplain and to minimize the impact to sensitive ecological areas Prohibit the manufacture or storage of hazardous substances in areas of high hazard such as floodplains and floodways.
- Require a plan for evacuating residents of all manufactured home parks and subdivisions located in flood-prone areas to be filed and approved by the appropriate emergency management authority in addition to enforcing flood damage reduction standards.

These items are NOT required; however, they are offered as additional considerations that floodplain managers can incorporate as they plan for better and safer communities. Many of the activities can be accomplished in a pre-flood climate or even if the community has never experienced the 100-year flood. Others may be accomplished when increased federal, state, and local resources become available such as after a major flood event. Give some thought to how your community could reduce its risk to flooding! If you would like to incorporate some of the above recommendations into your existing flood damage prevention regulations, give us a call. We would be happy to assist you in developing more comprehensive local floodplain management programs.



## Rate Changes Affect Pre-FIRM Structures.

By Mary Klemas, Planner  
Division of Water

The following is adapted from the Federal Register Rules and Regulations, Vol. 61, No. 43, Monday, March 4, 1996, pages 8222-3.

The final rule on the increased cost of subsidized flood insurance for new and renewal policies was released on March 4, 1996. These rate increases apply to all structures located in communities participating in the Emergency Program of the NFIP and to certain structures in communities in the Regular Program of the NFIP. Since no comments on the proposed rule were received from the public during the comment period, the final rule does not contain any changes. The rate increases became effective on April 30, 1996. The affect of the increases is shown in the following table and is based on rates per year per \$100 coverage:

Type of Structure	OLD RATES		NEW RATES	
	Structure	Contents	Structure	Content
residential	\$0.60	\$0.70	\$0.68	\$0.79
non-residential	\$0.70	\$1.40	\$0.79	\$1.58

The entire premium, which includes an expense constant, increases only by the 10% allowed by statute. Despite this increase, the new rates produce only an estimated 39% of the premium that would have to be charged if these policies were based on a structure's actual flood risk (actuarial rate). The increase attempts to strike a balance between availability of flood insurance at reasonable rates to encourage coverage of pre-FIRM structures (built or substantially improved before the effective date of the initial Flood Insurance Rate Map) and the need to lessen the burden of the cost among those insureds being charged actuarial rates on their post-FIRM structures (built or substantially improved after the effective date of the initial Flood Insurance Rate Map). This flexibility helps the NFIP minimize costs and distribute financial burdens equitably among those who will be protected by flood insurance as well as the general public.

Since 1986, FEMA has not asked Congress to appropriate any taxpayer dollars to pay for this subsidy. Unfortunately, recent years have been

extremely high loss years starting with Hurricane Hugo in 1989. Because of this mounting loss experience, the need to reduce the subsidy was acknowledged. The increased rates resulted from an ongoing review and appraisal of the NFIP and of continuing efforts to maintain a business-like approach to its administration by emulating successful property insurance programs in the private sector as well as to achieve greater administrative and fiscal effectiveness in its operations.

For a copy of the complete final rule, contact our office in writing or by phone at (614) 265-6750. 💧

## Effects of Floodplain Management on Flood Insurance Rates:

### Structures in Floodplains

Without



By Richard J. Roths, Compliance Officer  
FEMA Region V

Areas without detailed studies are those areas which are identified as Special Flood Hazard Area (SFHA) on your Flood Insurance Rate Maps (FIRM) and identified by only the letter A (also referred to as unnumbered A Zones). The flood insurance premium rates for new structures, substantially damaged structures, or substantially improved structures in an SFHA without a detailed study can be relatively expensive.

Construction within an unnumbered A Zone is regulated under 44 Code of Federal Regulations (CFR), Section 60.3(b). Among the requirements that community officials must enforce are:

1. Subsection (3)- *Require that all new subdivision proposals and other proposed developments (including proposals for manufactured home parks or subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, include within such proposals base flood data.*
2. Subsection (4)- *Obtain, review and reasonably utilize any base flood elevation and floodway data available from a Federal, State, or other source ...*

The Base Flood Elevation (BFE) data should be used as long as they reasonably reflect flooding conditions expected during the base flood, are not scientifically or technically incorrect, and represent the best available data. Community officials should also consider formally adopting the data by reference as part of their floodplain management regulations.

Base flood data may be available from the Ohio Department of Natural Resources (ODNR), Division of Water; the U.S. Army, Corps of Engineers, the Natural Resources Conservation Service, and other regional and local agencies.

Community officials must also obtain:

- a. The elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures;
- b. If a non-residential structure has been floodproofed, the elevation (in relation to mean sea level) to which the structure has been floodproofed; and
- c. Maintain a record of all such information (44 CFR, Section 60.3(b)(5)).

By determining the base flood elevation, and assuring that structures are built in accordance with the National Flood Insurance Program (NFIP) regulations through the use of the elevation or floodproofing information, local officials can assure that structures qualify for significantly lower flood insurance rates than policies rated with the base flood elevation undetermined.

The rating table that insurance agents use to determine flood insurance rates (effective April 30, 1996) includes building rates for structures without basements or enclosures. For example, a \$200,000 single family residential structure without a basement would be rated as shown.

<b>Building's Lowest floor</b>	<b>Annual Premium</b>	<b>Payment over 30 years</b>
At or above estimated BFE	\$340	\$10,200
2-4 feet above grade	\$455	\$13,560
No elevation certificate	\$2,325	\$69,750

As you can see, determining a base flood elevation and obtaining an elevation certificate for a compliant structure is well worth the cost for your citizens. 💧

## Establishing Disaster Resistant Communities Will Be Focus of FEMA and Director James Witt Over Next Four Years

WASHINGTON December 26, 1996-Reducing the escalating costs of disaster assistance by promoting community responsibility will be the new focus of an unprecedented effort by the Federal Emergency Management Agency (FEMA), according to FEMA Director James Lee Witt. As he looks forward to his next four years at the helm of the nation's disaster response agency, Witt will concentrate on preventing people and communities from becoming victims of disasters by encouraging the concept of disaster-resistant communities.

*In the last five years, federal disaster expenditures have risen from \$3.3 billion to more than \$13 billion. The exploding cost of local and federal assistance can be reduced if communities take constructive actions to reduce damage prior to the next disaster, Witt said. FEMA will embark on an ambitious campaign to prevent people and communities from becoming the victims of disasters. We are ready to work with city, county and state officials to establish disaster-resistant communities and promote safer, more economically sound neighborhoods throughout the nation.*

In the next four years, FEMA will encourage the establishment of disaster-resistant communities by focusing on three areas of activity:

- **Establishing a Pre-Disaster Mitigation Fund:** FEMA will establish a pre-disaster mitigation fund which will provide financial incentives for high-risk communities to undertake mitigation efforts to protect infrastructure and buildings before disaster strikes. Congress gave FEMA \$2 million in its fiscal year 1997 budget to start the effort. Mitigation is the effort undertaken by individuals and communities to reduce the loss of life and property in future disasters.

- Implementing a Public/Private Partnership for Emergency Management: FEMA is exploring partnership opportunities with the private sector to include the business community in the nation's emergency management system. The Public/Private Partnership for Emergency Management will identify disaster risks to communities, develop operating procedures for response activities, short-and long-term recovery planning, and executing training and exercise programs. The effort will also work closely with Congress and the insurance industry to develop a national all-hazards insurance program.
- Overhauling FEMA Public Assistance Programs: Two-thirds of all FEMA disaster assistance goes to rebuilding public infrastructure such as schools, roads, bridges damaged by disaster. FEMA is examining its Public Assistance program to dramatically streamline the program's procedures and expedite a community's recovery.

In addition to the new agency initiatives, Witt will embark on a series of town hall meetings in high-risk areas throughout the country to encourage the concept of disaster-resistant communities. These meetings will bring together federal, state, local, private sector and non-profit partners to focus public attention on mitigation and community responsibility.

Since Witt became FEMA Director on April 6, 1993, his main objective has been to reduce the burden of disaster costs to American taxpayers while improving assistance to the nation's disaster victims and their communities. To accomplish this goal, Witt initiated efforts to streamline agency functions and enhance the delivery of federal relief to people devastated by natural and manmade disasters.

*Each of these initiatives allowed FEMA to dramatically cut the time it takes disaster victims to register and receive disaster assistance, Witt said. No longer do people stand in line waiting to complete a paper application form that takes weeks to process. Now people register for assistance by telephone and FEMA disaster relief gets to victims in days instead of weeks.*

Over the last four years, FEMA earned accolades for initiating efforts that have left the agency stronger and better equipped to meet the needs of the American

people when disaster hits. Some accomplishments include

- Establishing a rapid response capability with national teams deployable within four hours of an event.
- Developing a national teleregistration line that enables disaster victims to request disaster assistance with one toll-free phone call.
- Computerizing the disaster assistance application process.
- Establishing a national disaster finance center which reduced the delivery of disaster assistance checks from weeks to days.
- Applying technological advances such as a hand-held computerized inspection capability to streamline the delivery of disaster assistance.

*In the past four years, the American people have experienced some of the most costly disasters in our nation's history, said Witt. Establishing public trust and keeping President Clinton's commitment that the government would be there when the public was most in need, in the aftermath of disasters, was our goal.* 💧

## **FEMA Withholds Mitigation Funds Over Substantial Damage Issue**

*Taken from an article that appeared in the Minnesota Department of Natural Resources newsletter, **WaterTalk** Volume 9, Issue 3 Spring/Summer 1995.*

**T**he Federal Emergency Management Agency (FEMA) is holding up post-flood mitigation assistance money to 14 Illinois communities that were hit by the Great Flood of 1993 and to one community flooded in the spring of 1994.

Four of the communities were identified as in serious noncompliance. FEMA is withholding their remaining funds. The other 11 are having their money meted out as FEMA monitors their progress.

FEMA's main concern is the lack of an effective enforcement program to regulate reconstruction of substantially damaged buildings. Some communities



## Ohio Department of Natural Resources Division of Water Fact Sheet

Fact Sheet 96-40

# Post-Disaster Floodplain Management

**F**looding is the largest natural disaster threat to Ohio. Local and state floodplain management programs reduce future flood damages and protect the natural benefits of the floodplain. If a community implements programs to reduce future flood risks, the federal government will make flood insurance available through the National Flood Insurance Program. Land use regulations, containing the minimum federal standards of the (NFIP), are adopted and enforced by local communities and state agencies to protect lives and property from the peril of flooding.



This fact sheet is intended to assist local and state agency floodplain managers in post-disaster situations to identify their NFIP

responsibilities. Administration and enforcement of floodplain management regulations are especially critical following a disaster event in order to stop the cycle of repetitive flood losses, and to comply with the NFIP criteria of the Federal Emergency Management Agency (FEMA) which ensures flood insurance and flood disaster assistance eligibility.

### After the Flood . . .

Immediately following a flood, many forces can devastate a community's floodplain management program. These include:

- Pressure to rebuild immediately with as little inconvenience as possible.
- Lack of coordination among agencies at different governmental levels.
- Misinformation about both flood insurance and allowable construction in the floodplain.

What is the solution? By understanding the community's floodplain regulations and implementing an effective permit procedure the floodplain administrator can significantly reduce the impact of these forces.

### Substantial Damage and the Permit Process

Before repair or alteration following a flood or other disaster, the local floodplain administrator is required to determine whether damaged structures must be flood protected to comply with the local floodplain regulations for "substantially damaged" structures. Under the NFIP, "substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Preliminary damage assessments compiled soon after disasters by county emergency management staff can be a good starting point for identifying potentially substantially damaged structures. These assessments are used to determine county need for state and federal disaster assistance, and can be a screening tool to separate structures with minor damages from those with significant structural damage.

The next step is to require applications for floodplain development permits which will verify whether a structure is substantially damaged. The floodplain administrator must confirm if a potentially substantially damaged structure exists by reviewing the property owner's estimate of repair cost and market value of the building prior to the damage event. The floodplain administrator is responsible for notifying the property owner of the flood protection elevation and construction standards contained in the local floodplain regulations. Structures sustaining "substantial damage" must be flood protected to at least the 100-year base flood elevation.

#### Example

Market value of residential structure:	\$90,000
Cost to repair structure to its before damaged condition:	\$52,000
Ratio of repair cost to market value:	58%

Structure is substantially damaged,  
Structure must be flood protected!

*Continued on back!*

## The Standards

**The lowest floor of a new or substantially damaged/improved residential structure located in the 100-year floodplain shall have its lowest floor elevated to or above the base flood (100-year) elevation. A new or substantially damaged/improved nonresidential structure located in the 100-year floodplain shall have its lowest floor elevated to or above the base flood elevation or shall be floodproofed watertight to that level.**

These standards are found in nearly all Ohio communities' floodplain regulations. While there are other standards for development in a community's floodplain regulations, the above will be the most frequently applied in post-disaster situations.

### Before the Flood . . .

Post-disaster chaos can be reduced if the floodplain administrator is prepared before the flood occurs. In fact, the NFIP is based on the concept that new floodplain development will conform to certain standards before a flood so that damage to that development will be reduced during and after the flood. Before a flood occurs in your community:

- Work closely with other officials involved in post-disaster recovery such as the County Emergency Management Director, Building Official, Health Dept. Official, and Community Engineer.
- Review flood maps and other information to pre-identify areas and structures at risk.
- Have adequate supplies of public information and permit materials such as fact sheets, press releases, permit forms, and design manuals ready for distribution immediately after a flood.

### Mitigation in Post Flood Situations

Recent federal and state policies have promoted the concept of hazard "mitigation"- reducing the impact of a disaster, to end the repetitive loss cycle. Mitigation of losses during repair of substantially damaged structures is required under community regulations in NFIP participating communities.

The Hazard Mitigation Grant Program and Flood Mitigation Assistance Program are two ways communities can obtain federal funding for projects which reduce flood damage potential during future disasters. Flood hazard mitigation strategies utilized by

these programs include: acquisition and relocation of damaged structures; open space land use dedication; elevation or retrofitting of floodprone buildings; training for professionals and local administrators in mitigation techniques; development of hazard mitigation plans; and improvement of or construction of minor structural flood control facilities. In addition to the above, a variety of programs provide opportunities to assist disaster victims and communities, while achieving NFIP regulatory compliance and providing strategies to break the repetitive loss cycle.



For more information on flood hazard mitigation and the NFIP, please contact the Division of Water's Floodplain Management Program at (614) 265-6750.

### References

The following materials are available free of charge to assist community officials with their floodplain management programs:

FEMA	Technical Bulletin Series on floodplain construction techniques and certifications.
FEMA-54	Elevated Residential Structures
FEMA-85	Manufactured Home Installation in Flood Hazard Areas
FEMA-102	Floodproofing Nonresidential Structures
FEMA-114	Retrofitting Flood Prone Residential Structures
FEMA-213	Answers to Questions about Substantially Damaged Buildings
FEMA-229	Disaster Assistance: A Guide to Recovery Programs
ODNR	Handbook for Local Permit Officials

Other materials available from the Division of Water include fact sheets and sample news releases. Please call 1-800-480-2520 for FEMA publications or (614) 265-6750 for Division of Water publications.



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had no records of checking to see if buildings were substantially damaged, others were only enforcing the requirement if people applied for a permit, and other communities had no permit system at all.

The substantially damaged requirement is a tough one to enforce; substantial damage occurs when the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the pre-damage market value.

Local ordinances and the federal regulations require a substantially damaged building to comply with the same regulations as a new building. This also holds true for improvements that total 50 percent of the market value. If repair of damage and further improvements total over the 50 percent threshold, the combination would also be treated as if the structure were new. The regulations make the following requirements for substantially damaged and/or improved buildings:

- **Residential:** must be elevated above the base flood elevation or relocated out of the floodplain.
- **Nonresidential:** must be elevated, flood-proofed or relocated out of the floodplain. 💧

## Post-Disaster Floodplain Management



### NEW ODNR FACT SHEET #96-40

By Cynthia J. Crecelius, Supervisor  
Division of Water

**B**etween August of 1995 and May of 1996, the State of Ohio received three Presidential Disaster Declarations for damage caused by flooding. During response and recovery efforts it was discovered that many communities were not successfully addressing their National Flood Insurance Program (NFIP) floodplain management responsibilities. A community's primary responsibility is to review flood hazard area development (new and substantially damaged, structural and nonstructural) to determine that it is designed and built to reduce

risk to flooding. Communities satisfy this responsibility by using a permit process and establishing specific development criteria for each development.

In the period immediately after a major flood event most victims, local, state and federal officials are all concerned with ASSISTING the community to recover. Many federal, state and local resources become available to determine the damage extent and recommend recovery strategies. Emergency management staff has been trained to conduct damage surveys as a basis for their requests for assistance from state and federal agencies and programs. Floodplain management staff needs to determine which structures have suffered *substantial damage*, and what development standards will need to be satisfied if repair occurs. The NFIP regulations and each community's floodplain management regulations define *substantial damage* as damage which is equal to or greater than 50% of the structure's market value before the damage occurred. If a disaster damaged structure crosses this 50% market value threshold, it will be subject to specific flood protection standards. There have traditionally been less resources available to assist floodplain managers in the development review and permit process. Local communities are frequently confused on how they can use the resources from the response phase of disasters to complement their long-term recovery. Floodplain management must be addressed both in the short-term response, and especially in the long-term recovery of the community.

Chad Berginnis and Mike Gease, staff planners in the Floodplain Management Program, have compiled a new fact sheet to assist local and state agency floodplain managers in post-disaster situations to quickly identify their NFIP responsibilities. They have also identified how emergency management information obtained during response can be the starting point for effective NFIP compliant recovery. Please read the enclosed copy of *Post-Disaster Floodplain Management* and share it with other interested persons in your community. Your questions or comments may be addressed to the Floodplain Management Program staff at (614) 265-6750 or write: Floodplain Management Program, Ohio Department of Natural Resources - Division of Water, Building E-3, 1939 Fountain Square Drive, Columbus, Ohio 43224. 💧

## NEW Floodplain Management Guidebook Available

The Federal Emergency Management Agency has released a new publication: *Protecting Floodplain Resources - A Guidebook for Communities*. It contains planning guidelines to ensure maintenance of the ecologically productive and environmentally sensitive floodplain areas. Free copies may be obtained from the FEMA Distribution Center by calling (800)-480-2520.

## Tornado/Flood Safety Awareness Week

March 9-15, 1997



By Peter G. Finke, Administrator  
Division of Water

In an effort to educate Ohio citizens on how to best prepare for and respond to natural hazards, the Ohio Committee for Severe Weather Awareness conducts annual weather safety awareness campaigns. Since 1978, this Committee has been preparing and disseminating statewide information packets to the media and other community services. The ODN, Division of Water is a Committee member and an active participant in this educational effort.

For 1997, the week of March 9-15 has been proclaimed by Governor George V. Voinovich as Tornado/Flood Safety Awareness Week. This is an appropriate month in which to conduct such a campaign since some of Ohio's worst floods have occurred during the month of March. The following is a brief description of the types of flooding we can expect in Ohio and examples of actual occurrences.

Although flooding can occur at any time during the year, Ohio's main flood season, historically, has been winter and early spring. Ohio's most devastating floods-such as occurred in March 1913, March 1936, January 1937, and January 1959-took place during Ohio's cold season.

The National Weather Service of the federal government, which has primary responsibility for monitoring weather and issuing weather-related warnings, identifies three types of floods that affect Ohio:

1. General river flooding which occurs after heavy rain has fallen over a large area for an extended period of time. Such floods usually are associated with the movement of large and contrasting air masses. These floods develop slowly and cover large areas of land.
2. Flash flooding is associated with very heavy *cloud burst* type of rain, generally of a short duration. Such intense rainfall is more localized and affects a much smaller land area than the general river flooding. Flash flooding occurs frequently in hilly or mountainous areas, and is most commonly associated with the warm season. Flash flooding can develop in a matter of hours giving people very little chance to move to safety.
3. Urban and small stream flooding occurs when heavy rain falling over a short period of time overwhelms small streams and ditches. It occurs primarily in urban areas causing storm sewers to back up resulting in flooded streets, underpasses and basements. This type of flooding occurs annually in urban areas and is considered more of a nuisance flood.

An example of a general river flood is the March 23-27, 1913 flood which is Ohio's greatest flood of record. From four to more than eleven inches of rain fell over the entire state during a five-day storm. Almost every county in Ohio experienced greater than 75-year flooding. In the Miami and Scioto river basins - the two hardest hit basins in the state - flooding approached a 500-year frequency of recurrence. Some 467 people perished in the floods, hundreds of people were never found, and many died subsequently from injuries or exposure. Some 20,000 homes were destroyed and another 41,000 damaged. Tens of thousands of people were made homeless by the flood. Reconstruction was hindered because some 220 bridges and many miles of roads were destroyed. Statewide damage totaled \$143 million, or about \$1.5 to 2 billion in today's dollars.

One of Ohio's most disastrous flash floods took place on June 14, 1990 near Shadyside in Belmont County. Twenty-six residents along three small creeks died as a result of an intense thunderstorm that dumped from 3 to 5 inches of rain in under two hours. These normally placid creeks became deadly torrents of flood water smashing in its path homes and vehicles, and uprooting trees.

The above examples reinforce the importance of conducting annual flood awareness safety campaigns. If you would like to be part of this educational effort, please contact the state or county emergency management agency or the local chapter of the American Red Cross. 💧

## Upcoming Events



There are many opportunities to learn more about floodplain management. Mark your calendar for these upcoming events.

### ASFPM 21st Annual Conference

The Association of State Floodplain Managers (ASFPM) is holding its annual conference in Little Rock, Arkansas. If you are interested in receiving conference topic information or in attending, please contact Diane Watson, ASFPM Executive Office Manager at (608) 274-0123.

### Agent & Lender Seminars

If you know of any mortgage lenders or insurance agents who may want to know more about their role in the NFIP, please let them know about the upcoming seminar at the Trotwood Department of Planning & Development, 35 North Olive Road, Trotwood, Ohio 45426

The seminar for agents will be held on  
**April 24, 1997 at 9:00 A.M. to 1:00 P.M.**

(contact Mitch Wilson, Ohio Insurance Institute (614) 228-1593 to receive the approved 4 hours CE)

The seminar for lenders will be held on  
**April 25, 1997 at 9:00 A.M. to Noon**

If you are interested in receiving information or in attending any Agent/Lender Seminar, please contact Rich Slevin, Regional Marketing Manager for the NFIP at (708) 955-4550

### EMI Classes

The Emergency Management Institute (EMI) at Emmitsburg, Maryland offers courses for federal, state, and local government floodplain officials, emergency management officials, and consultants.

If you want to know more about your role in the NFIP, you should know about *Managing Floodplain Development Through the NFIP*. Classes will be held on July 21-25, 1997.

A course on, *Retrofitting Floodprone Residential Buildings* will be offered both April 21-25, 1997 and September 8-12, 1997.

Each class is limited to 25 students. Tuition is free. For more information contact our office at (614) 265-6750

## WORKSHOP WATCH



By Christopher M Thoms, Planner  
Division of Water

Since our last (Summer 1996) issue of *The Antediluvian*, our staff has conducted Flood Loss Reduction Workshops in Franklin, Shelby, Tuscarawas, Crawford, Lucas, and Columbiana counties. One hundred forty-nine officials representing seventy-seven communities from twenty-eight counties attended these sessions.

The Floodplain Management staff extends our thanks to our hosts, Patricia Beck, Planning Supervisor, OEMA; David Waltz, Executive Director, Shelby County Regional Planning Commission; Arthur Taylor, Director, Tuscarawas County Regional Planning Commission; Kristine Strauch, Director, Crawford County Emergency Management Agency; Jenny Carter, Environmental Planner, Toledo Metropolitan Area Council of Governments; and Jay Carter, Director, Columbiana County Emergency Management Agency for their help and hospitality.

As we go to press, a workshop is being scheduled in Scioto County for Spring-1997. Contact our office for the time and location of the workshop nearest you.

We are looking for additional workshop locations. By committing to be a local host, you provide the officials in your area an opportunity to increase their awareness and knowledge of National Flood Insurance Program (NFIP) topics. The workshop has been designed as a half-day session and is focused on assisting local officials with understanding floodplain management concepts and specific NFIP participation responsibilities. Workshop participants will be provided an opportunity to work in small groups through a hands-on exercise simulating development review and permit issuance for a proposed development in a special flood hazard area.

If you would like to be a host for a workshop in your area, please contact our office at (614) 265-6750. We will be happy to answer your questions or provide additional information

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Christopher M. Thoms, Editor.

**For more information or assistance with Ohio's floodplain maps and regulations call (614) 265-6750 or visit our offices.**

If you know of someone who would want to receive a copy of *The Antediluvian*, please let us know. Please send address corrections, additions, and office or personnel changes to our offices at 1939 Fountain Square Bldg E-3 Columbus, Ohio 43224



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