



# Flood Current

Vol. 18, No. 2



## 2007 Remembered as “Year of the Storm”

Gavin Brady, OWRB  
State Floodplain Coordinator

To Oklahoma’s floodplain and emergency management officials, 2007 will long be remembered as the “year of the storm.” The year began with heavy snow followed by ice. Unprecedented rainfall and serious flooding plagued the state during the spring and late summer with the December ice storm bringing the year to its end. The OWRB has always worked closely with Oklahoma Emergency Management (OEM), especially during times of disaster. With all the different Presidential Declarations, Oklahoma communities have the opportunity to qualify for Hazard Mitigation Grant Program (HMGP) funds. To qualify for HMGP funds the community must have a Hazard Mitigation Plan completed and approved by OEM. HMGP funds are only available after a Presidential Declaration and after assessment teams from FEMA and OEM have assessed the damages and given a dollar figure for repair costs. For more information the HMGP program and other funding opportunities offered by OEM go to [www.oem.ok.gov](http://www.oem.ok.gov).

The Oklahoma Floodplain Managers Association (OFMA) held its 17th Annual Conference in September at the Doubletree Hotel in Tulsa. Over 175 OFMA members attended. The Conference theme, “It will rain again, it will flood again,” was determined months before the flooding occurred and actually during a drought period. Bill Smith, current Chairman and Vice Chair at the time, did an excellent

job coordinating efforts for such a wonderful Conference. OFMA is hosting its Spring Technical Workshop in Ardmore on April 3, 2008. For those of you who like to plan well into the future, the September 2009 Annual Conference will be held on the campus of OSU. OFMA and the OWRB are also pleased to announce the Association of State Floodplain Managers (ASFPM) has officially selected Oklahoma City as the site for their 2010 Annual Conference. Over 2,000 participants are expected to attend. What a great opportunity to showcase our State and the great strides we’ve made in the Floodplain Management arena. Please visit the OFMA Web site at [www.okflood.org](http://www.okflood.org) and ASFPM at [www.floods.org](http://www.floods.org).

As required by State Law, all Floodplain Administrators (FPA) are required to attend annual training and obtain at least 6 continuing education credits. The State offers 13 opportunities to attend a workshop. The Floodplain Management 101 class and the Advanced Map Modernization class are held at the University of Oklahoma’s Continuing Education Center (OCCE) during most months, and then in March we bring the class to a location near you in Woodward, McAlester, Bartlesville, and Lawton. Please check the OWRB Web site at [www.owrb.ok.gov](http://www.owrb.ok.gov) for dates that might accommodate your busy schedule.



*Flooded highway in Nowata County last June, a perfect example for the “Turn Around Don’t Drown” campaign. Is the road bed still in place? How deep is the water? It is impossible to tell.*

## Inside

- ✓ 2007 Remembered as “Year of the Storm”
- ✓ Why Bother? Floodplain Regulations Are There to Protect You
- ✓ Rhonda Bowers Retires from OWRB
- ✓ NGVD or NAVD? Ensuring Accurate Surveys
- ✓ Map Modernization and the Adoption Process
- ✓ Turn Around Don’t Drown Flood Awareness Poster Contest



*Little River (Norman) in August*

As the National Flood Insurance Program (NFIP) State Coordinator, the Oklahoma Water Resources Board (OWRB) partners with other state and federal agencies and local governments to prevent and mitigate the catastrophic effects of flooding disasters in Oklahoma. For more information, go to [www.owrb.ok.gov/hazard/fp/floodplain.php](http://www.owrb.ok.gov/hazard/fp/floodplain.php) or call (405) 530-8800.

## Why Bother?

The word "regulatory" has never been popular when used by any form of government, whether it is Federal, State, or municipal in nature. Most Oklahomans feel that less Government, or less "regulation," benefits our State. However, the regulations required to enforce floodplain management development are essential to protect property and the public safety of our citizens.

It became evident in the early 1960s that the private sector could not provide the means to insure the public a safe and reliable way to protect their home and contents from flood damage. It proved too costly for independent insurers to cover the costs associated with a major flood. To meet this need, the Federal Government, under the direction of the Department of Housing and Urban Development (HUD), implemented the National Flood Insurance Program (NFIP) in 1968. The NFIP provided government subsidized flood insurance to individuals who lived in communities participating in the NFIP.

After only four years into the program, the NFIP was tested on a major scale for the first time. Hurricane Agnes found its way along the East coast and caused major damage. With only 100,000 flood insurance policies in force, the Federal Government, as it had hoped to avoid, had to come in and provide millions of dollars in individual assistance. HUD quickly realized changes needed to take place, and through the Flood Disaster Protection Act of 1973, any federally backed mortgage in the floodplain was required to have flood insurance in place.

The United States went from 100,000 policies in 1972 to over 2,000,000 policies in 1979, the year the Federal Emergency Management Agency (FEMA) was established. Today there are over 4.5 million flood insurance policies with over 19,000 participating communities. Even though those numbers seem high, only 12% of all structures located in the floodplain currently have a flood insurance policy. While most people have fire covered under

their homeowner's policy, they are more likely to suffer flood damage than lose a structure to fire if they are located in the floodplain. FEMA has a Web site ([www.floodsmart.com](http://www.floodsmart.com)) filled with valuable information for anyone considering flood insurance. Please check it out.

The OWRB and OFMA always promote open space in the floodplain. However, landowners still have the right to develop on their property. So when FEMA, the OWRB, and ultimately the local Floodplain Administrator inform you that a structure being placed in the floodplain will need to be elevated, please remember that these regulations are in place to protect you and your property and minimize any damages due to flooding. Why bother.... it's the right thing to do.

## Rhonda Bowers Retires from OWRB

In September 2007, the OWRB bid farewell to long-time employee Rhonda Bowers. Rhonda began working at the OWRB in 1999 as a vital member of the OWRB's Floodplain Management Program. Rhonda proficiently assisted with the CFM Program and administration of the state floodplain management permitting system. She recorded project reviews, assigned permit numbers, handled internal review of projects, and prepared Board packets for each application. Rhonda also developed the administration of the new state accreditation process, including the renewal process. During a special retirement reception, Ken Morris, former



State Floodplain Coordinator, presented a Lifetime Membership award from OFMA to Rhonda noting her countless hours of patient and devoted service to the Floodplain Management program.

## Upcoming Workshops

Norman, February 20, 2008  
OU Center for Continuing Education  
1704 Asp Avenue  
(405) 325-2129

Woodward, March 4, 2008  
High Plains Institute of Technology  
3921 34th Street  
(580) 256-6618

McAlester, March 6, 2008  
Eastern Okla. State College  
Clark Bass Wing Rooms 230 & 232  
1802 College Avenue  
(918) 426-5272

Bartlesville, March 11, 2008  
Tri County Technology Center  
Chickasaw & Choctaw Rooms  
6101 SE Nowata Road  
(918) 331-3333

Lawton, March 13, 2008  
Fairfield Inn & Suites  
201 SE 7th Street  
(580) 248-5500

Norman, March 19, 2008

Norman, April 9, 2008

Norman, May 6, 2008

Norman, May 8, 2008

No registration fee. Lunch is on your own. Attending one class will meet the OWRB floodplain administrator accreditation requirement for 2008 (6 CECs). Classes begin at 8:30 a.m. and adjourn at 4:00 p.m. Register online at [www.owrb.ok.gov](http://www.owrb.ok.gov).

## NGVD or NAVD? Ensuring Accurate Surveys

(Article courtesy *Hawaii Flood News*, January 2008)

Regulatory floodplains are defined by the elevation of the base flood in relation to the elevation of the ground. Base flood elevations are used to determine the required elevation of new buildings in the floodplain. Floodplain management cannot succeed without accurate measurements of flood elevations, ground elevations, and building elevations. Needless to say, if flood elevations are based on one system and ground or building elevations are based on another, things won't work.

NGVD 29 stands for National Geodetic Vertical Datum of 1929. It is the system of vertical measurement that has been used by surveyors and engineers for most of the 20th century and was the basis for relating ground and flood elevations. Now, however, it has been replaced by the more-accurate North American Vertical Datum of 1988 (NAVD 88). Because it has such an impact on floodplain management, it is important for local officials to understand what's happening.

First, what is a "datum?" If we say that a flood will rise to 100 feet, one must ask "100 feet above what?" We need a consistent starting point so we can compare flood and ground elevations. The starting point for measuring elevations is our "datum plane," and the system and records we develop based on that plane are usually just called the "datum." In most cases, when we talk about elevations, we mean "above sea level." But some inland communities' elevation records were developed in relation to some other starting point. For example, the Chicago City Datum was developed with the level of Lake Michigan as its datum plane.

The National Geodetic Survey (NGS), the government people responsible for mapping, needed a common, consistent national datum plane from which to map the whole country. During the 1920s, the NGS established a network of 26 tidal gauges in the United States and Canada. Maps were prepared with elevations based on "Mean Sea Level Datum of 1929." In the 1970s, the name was changed to the National Geodetic Vertical Datum (NGVD) of 1929.

One reason for the name-change was that it was found that the sea is actually not level.

There are local variations caused by currents, wind, barometric pressure, temperature, sea bed topography, and salinity differences.

The NGS ran more surveys around the country and had trouble making the numbers fit because mean sea level at one location was higher or lower than mean sea level elsewhere. This leveling work also found that ground elevations had risen or fallen due to earthquakes, subsidence, and rebounding of the earth that has continued since the glaciers receded. New satellite technology has discovered distortions in surveyed



elevations caused by gravity.

Because of these shortcomings, the NGS established a new system on which to base elevation measurements.

The North American Vertical Datum of 1988 corrects many of the problems with NGVD 29. It is also based on satellite systems that account for differences in gravitational forces in different areas.

One can readily convert elevations in one datum to those based on another. For example, zero in' the Chicago City Datum (CCD) is 579.48 feet above zero ("mean sea level") in NGVD 29. If one tries to compare ground elevation in CCD to a flood elevation in NGVD 29, the 579-foot difference will make it readily apparent that something is off. A simple formula can convert elevations from CCD to NGVD 29, and vice versa.

Unfortunately, it's not so easy to convert to NAVD 88. The North American Vertical Datum is the product of thousands of corrections in elevation data. In the Rocky Mountains (where gravitational forces caused a lot of distortion to traditional surveys) the difference can be three feet or more. In other areas, the difference may be only a matter of inches. It takes a computer program called VERTCON to relate those two systems at any given point.

Up until recently, most FEMA Flood Insurance Rate Maps used NGVD 29. However, FEMA's new maps are using NAVD 88 as the basis for published flood elevations. If local surveyors or your community have not made the switch, errors will arise unless elevations in NGVD 29 or a local datum are converted to NAVD 88.

What is most important is that the same datum be used consistently. Since the base flood elevations used by the NFIP are on the FIRM, the FIRM datum must be used for the FEMA Elevation Certificate, Letters of Map Amendment, Letters of Map Revision, and other insurance-related purposes.

A community and the surveyors in the community may normally use NAVD 88 for most purposes, but if the community's FIRM uses NGVD 29, then NGVD 29 must be used for all flood, ground, and building elevations on elevation certificates and other NFIP uses.

It is basically the responsibility of the professional surveyor, engineer, or architect to use the appropriate datum on FEMA documents. However, the community must be aware of the potential for errors if more than one datum is used. You don't need to know the conversion factor between the two, but you do need to ensure that the same datum is used for all elevations the same document. In time, that datum will be NAVD 88 for just about every community. Meanwhile, local officials should review their benchmarks and other elevation reference to ensure that they state which datum is referenced and that they are consistent with any code requirements.

For more information on datums and their use in FEMA mapping, see [http://www.fema.gov/pdf/fhm/frm\\_gsab.pdf](http://www.fema.gov/pdf/fhm/frm_gsab.pdf)



## Oklahoma Floodplain Management Program

Oklahoma Water Resources Board  
3800 North Classen  
Oklahoma City, OK 73118  
[www.owrb.ok.gov](http://www.owrb.ok.gov)

STANDARD PRESORTED  
U.S. POSTAGE  
**PAID**  
Oklahoma City, OK  
Permit No. 310

## RETURN SERVICE REQUESTED



*Flood Current*, Winter 2007, Vol. 18, No. 2

OKLAHOMA WATER RESOURCES BOARD  
**Duane A. Smith, Executive Director**  
**Dave Dillon, Division Chief**  
Planning & Management Division  
**Gavin Brady**  
State Floodplain Coordinator

*The 1980 Oklahoma Floodplain Management Act authorizes communities to develop floodplain regulations, designate flood hazard areas and establish floodplain boards. Community floodplain administrators must become accredited and receive training through the Oklahoma Water Resources Board (OWRB). Consistent with protecting the natural functions of the floodplain and reducing flood losses, the OWRB values the No Adverse Impact floodplain management approach, promoting responsible floodplain development through community-based decision making. For more information about Oklahoma's Floodplain Management Program, go to [www.owrb.ok.gov/hazard/fp/floodplain.php](http://www.owrb.ok.gov/hazard/fp/floodplain.php) or visit the Oklahoma Floodplain Managers Association's web site at [www.okflood.org](http://www.okflood.org). The Flood Current is funded in part through the FEMA Community Assistance Program 2008 Agreement*

## Map Modernization and the Adoption Process

Each month in Norman the OWRB conducts a workshop on Map Modernization and the Adoption Process (see page 2 for workshop dates). The workshops are facilitated by Joe Remondini with the US Army Corps of Engineers. Joe includes key elements such as updating your flood damage prevention ordinance and or regulations, how to ensure the new DFIRM is adopted properly, how to ensure the Oklahoma Open Meeting Act requirements are met, and how to ensure the map adoption is done in accordance with the Oklahoma Floodplain Management Act. Other subjects covered in this one day workshop include how to perform a watershed master drainage plan and how to become a No Adverse Impact community, as well as various mitigation programs available through FEMA and information about the Map Modernization Program in general.

If you are a Professional Engineer, Certified Floodplain Manager, or an official floodplain administrator, you can earn six continuing education credits by attending one of these one-day workshops. Register online at [http://www.owrb.ok.gov/hazard/fp/fp\\_workshops.php](http://www.owrb.ok.gov/hazard/fp/fp_workshops.php) or for additional information on this Map Mod Outreach activity contact Joe Remondini, CFM, at (918) 669-7198.

## "Turn Around Don't Drown" Flood Awareness Poster Contest

### POSTER CONTEST 2008

Now's your chance to show off your talent, win cash and help Oklahoman's with Flood Awareness. Just fill in this entry form and give it to your teacher with your original poster about "Flood Awareness".

Name \_\_\_\_\_ Grade \_\_\_\_\_  
Parents \_\_\_\_\_ County \_\_\_\_\_  
Address \_\_\_\_\_ Town \_\_\_\_\_ Zip \_\_\_\_\_  
Home Phone ( ) \_\_\_\_\_ School Phone ( ) \_\_\_\_\_  
School \_\_\_\_\_ Teacher \_\_\_\_\_

**All entries become the property of the Oklahoma Floodplain Managers Association. The right to modify any poster for reproduction is reserved.**

**The deadline for entries is April 2, 2008. For more information or to receive a copy of OFMA's 2008 Calendar (at right), which displays last year's winning posters, contact Ken Morris at (405) 530-8800.**

