



# Yavapai County Flood Control District



## Newsletter

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WWW.YCFLOOD.COM

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### Websites for other related organizations:

AZ Dept of Water Resources  
www.azwater.gov

AZ Dept of Environmental Quality  
www.azdeq.gov

AZ Division of Emergency Management  
www.dem.azdema.gov

CORPS of Engineers  
www.usace.army.mil

Federal Emergency Management Agency  
www.fema  
www.floodsmart.gov

National Weather Service  
www.weather.gov

National Resource Conservation Service  
www.nrcs.usda.gov

US Environmental Protection Agency Region IX  
www.epa.gov/aboutepa/region9

## Flood Warning System in Yavapai County

Prior to 1989 the only Local Flood Warning System (LFWS), or ALERT System., with gauges in Yavapai County was the Flood Control District of Maricopa County (FCDMC).

Progress toward the YCFCD ALERT system began in the late 1980's when the Arizona Department of Water Resources (ADWR) conducted a flood risk study for communities in Arizona. In the study, a list of endangered Arizona communities was created which identified and tentatively prioritized them according to subjective risk estimates. The study concluded that Yavapai County should have a LFWS operated by the Yavapai County Flood Control District (YCFCD) to monitor:

- Oak Creek/Sedona
- Prescott area
- West Clear Creek
- Wet Beaver Creek

As a result, the Sedona/Oak Creek was chosen as a "pilot" project to demonstrate the feasibility of a

LFWS because the area had the potential to be the most costly disaster, with high loss of life and major property damage. The State would fund the initial cost, as well as, the



### What is ALERT?

ALERT is an acronym for "Automated Local Evaluation in Real Time" and describes a communication protocol developed by the National Weather Service in the 1970's for use in Local Flood Warning Systems (LFWS) to transmit hydro-meteorological data. The "real-time" aspect allows an agency to receive data from remote sensors within seconds after an event has been triggered or a sensor sample has been taken.

subsequent cost in updating the system to make it fully operational. However, Yavapai County was required to show both public support and future financial support. Otherwise, the system would be implemented in another part of the State. The Yavapai County Board of Supervisors quickly granted full sup-

port, and Coconino County followed shortly thereafter.

Installation began in late fall of 1988 and concluded in the spring of 1989. The Sedona/Oak Creek flood warning system originally included nine rain gauges, four stream gauges, one full weather station and a repeater to collect and re-transmit the data to a base station located at the Sedona Fire Department.

Within just a few months of conception of the Sedona/Oak Creek flood warning system, work began regarding phase two, up scaling the system to include Prescott area. Planning continued for two years and the sites were installed by 1991. Originally, the Prescott system included ten rain gauges, three stream gauges, and one repeater that transmitted data to a base station located at the YCFCD office.

YCFCD needed two additional items to collect all of the data at the base station, 1) A repeater located on **See Page Two...**

## Black Canyon City: Two Years Later

In 2010, a series of storms came over Yavapai County that led to a presidentially-declared disaster in Black Canyon City on January 21st. Black Canyon Creek and other lower Agua Fria watersheds experienced precipitation rates exceeding the 100-year Average Recurrence Interval (ARI) for the 4-day and 24-hour storms. In addition, portions of the upper watershed had a rain-on-snow event, adding melted snow to the runoff.

Due to the District ALERT system, emergency responders were able to get ahead of the disaster and evacuate willing residents to emergency shelters. The fire department even offered to remove RV campers from imminent danger along with the

people that needed assistance.

Within days of the event, the District hired J.E. Fuller Hydrology and Geomorphology, Inc. to survey the high water marks and key channel cross sections. Black Canyon Creek near Marin Avenue was altered, washing out the road and widening the watercourse, stranding several residents on the west side of the creek. The low water crossing at Squaw Valley Road at the Agua Fria River was also washed out and a secondary flow path was carved by the river into the crossing.

In addition to the roads lost, it is estimated that 95% of the damage to residential property occurred at the Rivers Edge RV Park. In total, 22

homes were destroyed, 11 experienced major damage, and 49 experienced minor damage. One of the most difficult issues for the residents was that there were no rental resources within 35 miles. The local community pulled together, with donations from local institutions.

Today, the portion of the RV park that flooded remains undeveloped. Maren Drive has been rebuilt with a temporary crossing while options for a more permanent crossing are discussed with the Army Corps of Engineers. Squaw Valley Road has been re-graded as a low water crossing with two dips now instead of one.

For photos from 2010 and today, please see Page Three.

## Flood Warning, Continued

Mingus Mountain to receive and relay the Sedona/Oak Creek data, and, 2) A repeater located on Spruce Mountain to receive and relay FCDMC sensor in Yavapai County. These repeaters would also be crucial to transmit the data to the National Weather Service Flagstaff office. While a temporary repeater was set up at Mingus Mountain in 1990, a fully functional repeater was installed by July of 1993. Spruce Mountain was then installed in May.

The next major phase came in 1997 when U.S. Army Corps of Engineers and ADWR sponsored the Arizona Flood Warning System. The goals of the system were to: 1) Strengthen communication links, 2) Improve real-time precipitation/stage data collection, and, 3) Expand coverage. In June of 1998 Phase 1 began which included installation of a high speed network communications infrastructure and connections with

selected participants. Phase 2 began in August 2001 with installation of 10 new sites for the YCFCD network.

Beginning in 1997, and continuing to the present date, YCFCD has taken lead on the flood warning program with installation of several gauges located in watersheds impacting Yavapai County. In 2000, YCFCD took responsibility for the gauges located in the Sedona/Oak Creek system and in 2003 a web site was constructed so the public could view gauge data.

Currently the Yavapai County ALERT System network collects data from 87 rain gauges, 24 water level gauges and 9 weather stations through a network of 7 repeaters. In addition, YCFCD receives data from FCDMC which owns and operates 39 gauges in southern Yavapai County (39 rain, 7 stream, 3 weather sta-

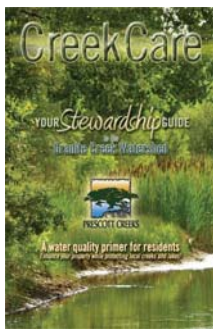
tions), as well as data from Mohave County which owns and operates two gauges in western Yavapai County (2 weather stations).

All data is received at our base station in Prescott and used to assess potential flooding threats in watersheds that impact Yavapai County. Historical data provides us information when determining potential drainage and roadway improvements.

In addition, the National Weather Service in Flagstaff receives the data and uses it to compare actual gauge data with that observed in their radar imagery and other weather forecast products. This aids the National Weather Service in their determination to issue flood watches, flood warnings and severe weather advisories.

## Prescott Creeks Releases Creek Care Guide

From the Prescott Creeks Website at [www.prescottcreeks.org](http://www.prescottcreeks.org):



Most of Prescott lies in the Granite Creek Watershed, named for Granite Creek which flows through downtown Prescott and fills Watson Lake. Our many local waterways contribute to the beauty of this region, enhance our quality of life, and attract visitors. Whether we live or work in town or in the surrounding rural environs, many of our daily activities can affect surface water quality. **Creek Care: Your Stewardship Guide to the Granite Creek Watershed** offers practical tips on creek-friendly practices that will help keep our creeks, lakes, and community healthy— starting at your home or business.

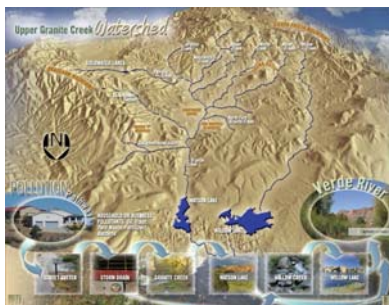
It covers topics such as: Storm Sewer vs. Sanitary Sewer; Pollution Pathways; Yard and Pasture Maintenance; Drainage; Erosion Prevention; Riparian Areas;

Native Vegetation; Septic Maintenance; and Local Codes, Ordinances, and Permitting.

The *Guide* is a small, full-color booklet that features the photographs of local photographer and naturalist, Walt Anderson.

Copies are available at the Prescott Creeks office, City of Prescott, Yavapai County, University of Arizona Cooperative Extension's Yavapai County office, as well as local businesses.

This project was funded by the Arizona Department of Environmental Quality through the Targeted Watershed Improvement Plan Grant program and contributions from the City of Prescott. Special recognition goes out to Walt Anderson and University of Arizona Cooperative Extension's Yavapai County office for providing technical reviews. For more information contact Prescott Creeks at 445-5669.



## Gauge of the Month



### WHITE HILLS

Gauge ID: 420

Gauge Type: Precipitation

Watershed: Verde River

Installed: 7/15/2004

Location: Middle Verde



## *Black Canyon City: After the Disaster in 2010, and Today*



*Maren Drive across Black Canyon on January 21, 2010, above. Squaw Valley Road across the Agua Fria River, January 21, 2010, below.*



*Maren Drive across Black Canyon with a temporary road crossing today, above. Squaw Valley Road across the Agua Fria River with a new low water crossing, today, below.*



*School House Road Bridge across Black Canyon, January 21, 2010, below.*



*School House Road Bridge across Black Canyon, today, below.*



## Emergency Evacuation Instructions

The Yavapai County Emergency Management provides emergency evacuation instructions on its website, <http://www.co.yavapai.az.us/EM.aspx>. The list includes:

### Essentials to Take

#### Immediate Evacuation:

Take items pre-packed for evacuation, otherwise, take the 3 P's: Photos, pills and pets.

#### Short Notice Evacuation:

- Items pre-packed for evacuation, otherwise:
- Important papers/photos
- Medication
- Prescription glasses/dentures
- Personal hygiene items/sanitary needs
- Additional clothing
- Sleeping bags, blankets, pillows, etc.
- Baby food, bottles, diapers, change of clothes
- Checkbook, credit cards/cash
- Drivers license
- Pets, bowls, leash or carrier, recent photo

#### Extended Notice Evacuation:

- Items pre-packed for evacuation, otherwise,

- all items listed above and:
- Clothing and personals for the estimated length of the evacuation
- Special dietary items
- Flashlight, extra batteries
- Desired food items (non-perishable)
- Reading material
- First Aid Kit
- Toys/recreation items

**Officials will notify you of your route and destination. Weather and the nature of the emergency prevent pre-designated reception or shelter areas. Do NOT deviate from the route and destination you are given – the safest routes will be identified for you.**

### Evacuation Actions

#### Immediate Evacuation:

- Turn off gas and electric, or
- Unplug or turn off all appliances (except refrigerator and freezer)
- Lock doors and windows

- Tie a white towel or large white cloth to front door knob. (This advises rescuers and security of your evacuation)

#### Short Notice Evacuation:

- All of the above actions and:
- Unplug all equipment and appliances except refrigerator and freezer
- Close drapes and blinds
- Secure outdoor possessions
- Secure/hide other valuables

#### Extended Notice Evacuation:

- All of the above actions and:
- Attach garden hoses and nozzles to all outside faucets
- Remove garbage from inside of home
- Arrange for evacuation of campers/trailers/secondary vehicles (2nd car, etc.)
- Insure that all family members are aware of a pre-arranged meeting place
- Always: Tie a white towel or large white cloth to front door knob. (This advises rescuers and security of your evacuation)

## Yavapai County Flood Control District

500 S. Marina St.  
Prescott, AZ 86303

Phone: 928.771.3197  
Fax: 928.771.3427

10 S. Sixth St.  
Cottonwood, AZ 86326

Phone: 928.639.8151  
Fax: 928.639.8118

[www.co.yavapai.az.us](http://www.co.yavapai.az.us)

Please visit the County website for more information:

- Applications, Forms and Instructions
- Building Codes
- Community Plans
- Drainage Criteria Manual
- Fees/Impact Fees
- Flood Hazard Status Reports
- Flood Protection Information
- General Plan
- Ordinances
- Regulations
- Storm Water Management Program
- Related Links & More

### COUNTY TOLL FREE TELEPHONE NUMBERS

Ash Fork, Bagdad, Seligman, Yarnell 800.771.2797  
Black Canyon City and Phoenix Area 602.495.8800

### COUNTY SWITCHBOARD NUMBERS

Prescott 928.771.3100 - Verde Valley 928.639.8100

The Yavapai County Board of Supervisors also serve as The Board of Directors for the District.

The initial floodplain ordinance was adopted December 1981, and has been revised over the years.

The Drainage Criteria Manual, was first adopted November 1998, and revised August 2005. The current Ordinance and Drainage Criteria Manual are available on line at the County website or may be purchased at the Prescott and Cottonwood District offices.

### Services Performed

The District is available for assistance or technical advice on the following topics:

- National Flood Insurance Program
- District ALERT System
- Flood Insurance Rate Maps
- Flood Status Information on a Parcel of Land
- Flood Protection & Safety
- Local Flood Hazard
- Development & Permitting within the 100 year floodplain
- Construction in or adjacent to a significant watercourse
- Storm Water Quality and Pollution Control

Flood protection information and links to other agencies are available on the County website. Go to [www.ycflood.com](http://www.ycflood.com) for archived issues of this newsletter.