YAVAPAI COUNTY FLOOD CONTROL DISTRICT
WWW.YCFCD.COM
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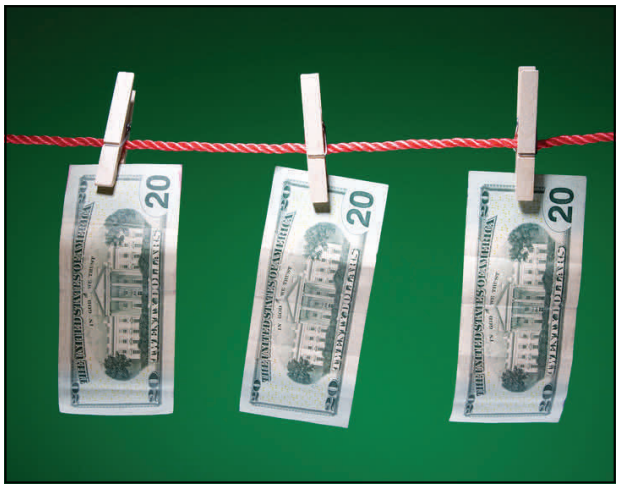
FISCAL YEAR WRAP-UP 2012/2013



It was a very busy year for the Flood Control District. We completed several large construction projects, including a storm drain system in the Forbing Park area and bridge scour protection for the Wet Beaver Creek Bridge in the Lake Montezuma area. We participated in post fire mitigation in the Crown King area, and helped staff the Emergency Operations Center during the Doce fire event.

We continued an aggressive schedule of FEMA map improvement projects and currently have 12 remapping projects underway. Our Verde River Remapping project moved into the final stages at FEMA and we held a number of public meetings in conjunction with the project. The Verde project, along with remapping in the Black Canyon City area and along the Highway 69 corridor are well through the FEMA process and will likely be issued in the upcoming year.

We are nearing completion on a major improvement to our flood warning website. We purchased a dual server and will be setting up a Yosemite Cloud website to allow us to bring together data from our gauges, NOAA radar and other products, USGS and proprietary data products on a single webpage. The webpage will have a password protected side wherein we will be able to setup specific data pages for individual Fire Districts and other Emergency Responders.

The District continues to work closely with the incorporated cities and towns providing financial contributions for drainage improvement projects within their jurisdictions. Over $2,000,000 in projects were completed this fiscal year by the communities. This program continues to provide a means for the communities to construct drainage improvement projects within their community.

The District voluntarily participates in the FEMA Community Rating System. Through this program we are rewarded for taking on floodplain management activities above the minimum required. Through our participation the citizens of the County can receive up to a 25% discount on federal flood insurance.

We are also working on our District documents and website. We are nearing completion on a new Drainage Design Manual. This document will provide guidance and standardization of drainage design and submittals. Our administrative group is continuing to scan various documents and make them available on the website.

INSIDE THIS ISSUE:

Flooding After A Fire

Floods are the most common and costly natural hazard in the nation. Whether caused by heavy rain, thunderstorms, or the tropical storms, the results of flooding can be devastating. While some floods develop over time, flash floods—particularly common after wildfires—can occur within minutes after the onset of a rainstorm. Even areas that are not traditionally flood-prone are at risk, due to changes to the landscape caused by fire.

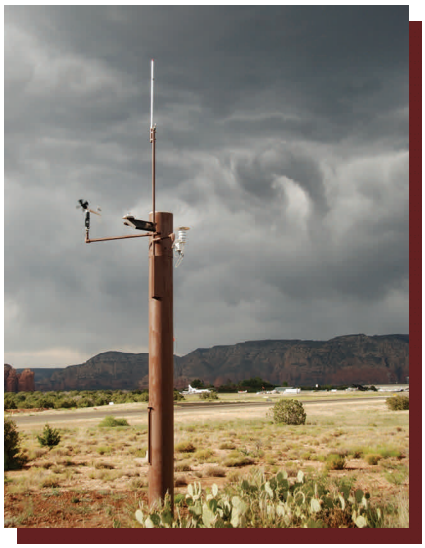
Residents can be at a great risk for flooding after a fire, especially with recent fires in Arizona. Large-scale wildfires dramatically alter the terrain and ground conditions. Normally, vegetation absorbs rainfall, reducing runoff. However, wildfires leave the ground charred, barren, and unable to absorb water, creating conditions ripe for flash flooding and mudflow. Flood risk remains significantly higher until vegetation is restored—up to 5 years after a wildfire. Flooding after fire is often more severe, as debris and ash left from the fire can form mudflows. As rainwater moves across charred and denuded ground, it can also pick up soil and sediment and carry it in a stream of floodwaters. These mudflows can cause significant damage.

There are many resources available to residents in and around areas of post-fire devastation and/or potential flooding. Remember that regular homeowner's insurance does not protect against flood related losses—only flood insurance does!

If your home is located in a community that participates in the National Flood Insurance Program (NFIP), you may purchase flood insurance no matter what type of flood zone your property is in. Yavapai County does currently participate as an active community in the NFIP. Additionally, as referenced in our previous newsletters, Yavapai County has recently earned a Class 6 rating through the CRS (Community Rating System) - enabling residents to receive up to a 25% additional discount on their flood insurance premiums.

For more information on flooding after fire, flood insurance and more, please visit www.floodsmart.gov. Additionally, you can visit the YCFCD website at www.ycflood.com for information and resources.

Gauge of the Month



SEDONA AIRPORT

Gauge ID: 150

Gauge Type: Rain/Weather

Watershed: Verde River

Sub-basin: Oak Creek

Location: City of Sedona

Installed: 6/10/1990

Wildfire Impacts on Surface Water Quality

Wildfires can produce significant water quality changes that may impact fish and other aquatic organisms, drinking water supplies and wastewater treatment systems. These impacts are cumulative as a result of pollutants mobilized by the fire, chemicals used to fight the fire, and the post-fire response of the landscape. Responses include both immediate / short term responses as well as longer term (decade or more) impacts.

One of the first and greatest impacts of wildfire is a significant increase in stormwater runoff which can lead to considerable downstream flooding. Runoff is magnified due to the loss of vegetation and the development of hydrophobic soils during intense wildfires. Rain that falls in a wildfire impacted watershed cannot easily infiltrate into the ground because (1) the loss of vegetation does not slow precipitation down once it hits the landscape, and (2) the development of hydrophobic soils during a wildfire physically repels any precipitation and does not allow infiltration into the ground. Increases in streamflow following a fire can result in little to substantial effects on the physical, chemical, and biological quality of the water in streams, rivers, and lakes. The magnitude of these effects is largely dependent on the size, intensity, and severity of the fire, and on the condition (i.e., healthy or poor) of the watershed at the time of burning.

As mentioned previously, wildfires can affect the physical, chemical, and biological quality of streams, rivers and lakes. After a fire, increased runoff provides the pathway for the transport of chemical laden sediment to surface water, which may have substantial water quality impacts.

The primary water quality concerns after a wildfire are:

1. The introduction of debris and sediment, including black ash, from burned vegetation. In the immediate period after the fire this runoff can result in fish kills by robbing the streams of oxygen through decomposition and by physically injuring the gills of fish. It can be detrimental to other aquatic life by smothering habitat upon which these organisms depend. Furthermore, increased sediment loading can drastically impact lake and reservoir holding capacities as well as the functionality of the outlet works by filling the system with sediment and debris.
2. The increase of nitrate and other plant nutrients. Burning vegetation releases nutrients contained within plants including nitrate, ammonia and phosphate. At high concentrations ammonia can be toxic to fish and other aquatic life. Elevated nutrient concentrations, especially nitrate, can be a concern if downstream uses include a public drinking water supply. Increases in nitrogen and phosphorous concentrations also may lead to algal blooms resulting in extreme daily fluctuations in oxygen depletion as plant photosynthesis, respiration, and decomposition intensify. Anaerobic conditions (i.e., lack of oxygen) stress aquatic organisms and can alter a wide range of chemical equilibria, which may mobilize certain toxic pollutants.
3. The introduction of radionuclides and heavy metals from ash, soils, and geologic sources within the burned area. Gross alpha activity increases in stormwater runoff are strongly correlated with the amount of suspended sediment carried in stormwater. Post fire flash floods contain extremely high levels of suspended sediment and subsequently have very high levels of gross alpha activity.
4. The introduction of fire retardant chemicals into waterbodies, that can reach levels toxic to aquatic organisms. Fire retardants typically contain large amounts of nitrogen as ammonia, and they can cause water quality problems when fire suppressing drops are made close to streams.

The magnitude of the effects of fire on water quality is primarily driven by fire severity (how much of the fuel is consumed) and fire intensity (how hot the fire burned) coupled with subsequent seasonal weather events (e.g., monsoon rainfall). In other words, the more severe the fire, the greater the amount of fuel consumed, the more nutrients released, and the more susceptible the watershed is to erosion of soil and nutrients into the stream, which could negatively impact water quality. In addition, fire intensity affects the formation of hydrophobic soils that repel water and increase the probability of stormwater runoff in the watershed. Another important determinant of the magnitude of the effects of fire on water quality is the slope of the burned area; steeper slopes are more likely to result in greater runoff and transport of chemicals and sediment to streams, rivers, or lakes in the watershed.

Code Red Emergency Alert System

CodeRED was originally designed to enable local government officials to record, send and track personalized messages to thousands of citizens in minutes.

CODERED

Keeping citizens informed.

The CodeRED system was designed to be easy to use even under the most strenuous of conditions. Messages can be sent by authorized users via telephone or internet (i.e. phone calls, text messages, or email) from anywhere at any time.

The CodeRED system is used to send critical communications such as evacuation notices. Your contact information remains private and will only be used for community notifications. If you miss the call, you may hear the last message delivered to your phone through the CodeRED system by dialing back the number on your Caller ID.

The Yavapai County Sheriff's Office utilizes CodeRED as its Emergency Notification System. All County residential and business landline phone numbers currently published in the white or yellow pages are already in the system. Residents can also sign up to enter alternate phone numbers or other methods of contact.

For more information, answers to common questions, or to sign up for this service, please visit http://www.ycsoaz.gov.

YCFCD Contact Information

Locations:

1120 Commerce Dr. Phone: 928.771.3197
Prescott, AZ 86305 Fax: 928.771.3427

10 S. Sixth St. Phone: 928.639.8151
Cottonwood, AZ 86326 Fax: 928.639.8118

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*

www.yavapai.us

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. Visit www.ycflood.com for archived issues of this newsletter.