## Preparing you for Emergencies: Flash Floods

Flash floods are one of the leading causes of weather related deaths annually.

How do flash floods occur? Several factors contribute to flash flooding. The two key elements are rainfall intensity and duration. Intensity is the rate of rainfall, and duration is how long the rain lasts. Topography, soil conditions, and ground cover also play an important role.

Flash floods occur within a few minutes or hours of excessive rainfall. Flash floods can move vehicles, tear out trees, destroy buildings and bridges. Rapidly rising water can reach heights of 30 feet or more. Furthermore, flash flood-producing rains



can also trigger catastrophic mud slides and road wash-outs. You will not always have a warning that these deadly, sudden floods are coming. Most flood deaths are due to FLASH FLOODS.

Know your area's flood risk. An example in Louisville is the area adjacent to Beargrass Creek. The areas surrounding Bellarmine University, Baptist Hospital East and Anchorage have all had flash floods. For more potential locations, call your local National Weather Service office, Red Cross chapter, or local emergency management agency. If you live in a potential flood area, check your homeowner's or renter's insurance. Contact your insurance agent to find out how to obtain flood insurance.

Even 6 inches of fast-moving flood water can knock you off your feet, and a depth of 2 feet will float your car! NEVER try to walk, swim, or drive through such swift water. If you come upon flood waters, STOP! TURN AROUND AND GO ANOTHER DIRECTION.

As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff 2 to 6 times over what would occur on natural terrain. During periods of urban flooding, streets can become swift moving rivers, while basements can become death traps as they fill with water.

Nearly half of all flash flood fatalities are auto related! In your automobile look out for flooding at highway dips, bridges, and low areas.

Water weighs 62.4 lbs. per cubic foot and typically flows downstream at 6 to 12 miles an hour. When a vehicle stalls in the water, the water's momentum is transferred to the car. For each foot the water rises, 500 lbs. of lateral force is applied to the car. But the biggest factor is buoyancy. For each foot the water rises up the side of the car, the car displaces

1,500 lbs. of water. In effect, the car weighs 1,500 lbs. less for each foot the water rises. Two feet of water will carry away most automobiles.

Stay informed about flash flooding by listening to NOAA Weather Radio, commercial radio, and television for the latest flash flood/flood WATCHES, WARNINGS, and ADVISORIES.



NOAA WEATHER RADIO IS THE BEST MEANS TO RECEIVE WARNINGS FROM THE NATIONAL WEATHER SERVICE. The National Weather Service continuously broadcasts updated weather warnings and forecasts that can be received by NOAA Weather Radios sold in many stores. The National Weather Service recommends purchasing a radio that has both a battery backup and a tone-alert

feature which automatically alerts you when a watch or warning is issued.

## What to Listen For...

- FLASH FLOOD OR FLOOD WATCH: Flash flooding or flooding is possible within the designated WATCH area. Be alert.
- FLASH FLOOD OR FLOOD WARNING: Flash flooding or flooding has been reported or is imminent. Take necessary precautions at once.
- URBAN AND SMALL STREAM ADVISORY: Flooding of small streams, streets, and low-lying areas, such as railroad underpasses and urban storm drains, is occurring.
- FLASH FLOOD OR FLOOD STATEMENT: Follow-up information regarding a flash flood/flood event.

The rule for being safe in a flooding situation is simple: HEAD FOR HIGHER GROUND AND STAY AWAY FROM FLOOD WATERS!

## TAKE ACTION!

When a flash flood **WATCH** is issued be alert to signs of flash flooding and be ready to evacuate at a moment's notice. When a flash flood **WARNING** is issued for your area, or the moment you realize that a flash flood is imminent, act quickly to save yourself. You may have only **SECONDS**! Go to higher ground. Climb to safety!

- Get out of areas subject to flooding. This includes dips, low spots and areas around small streams, etc.
- Avoid already flooded and high velocity flow areas. Do not attempt to cross flowing streams.

- If driving, be aware that the road bed may not be intact under flood waters. Turn around and go another way. NEVER drive through flooded roadways!
- If the vehicle stalls, leave it immediately and seek higher ground. Rapidly rising water may engulf the vehicle and its occupants and sweep them away. Remember, it's better to be wet than dead!
- Be especially cautious at night when it is harder to recognize flood dangers.

## Web Links:

National Oceanic and Atmospheric Administration - <a href="http://www.noaa.gov/floods.html">http://www.noaa.gov/floods.html</a>

American Red Cross – <a href="http://www.redcross.org/services/prepare/0,1082,0\_240\_">http://www.redcross.org/services/prepare/0,1082,0\_240\_</a>,00.html

Federal Emergency Management Agency - http://www.fema.gov/hazard/flood/index.shtm

