

# FLOOD EDUCATION/ SAFETY

Metro Water Services



# FLOOD EDUCATION/SAFETY

- Types of Floods
- What You Can Do...
  - Before A Flood
  - During A Flood
  - After A Flood

# Areal Flood

- Gradual flooding of low lying areas after persistent moderate to heavy rainfall
- Saturated soils, from a previous or long rain event, can compound flooding.



# River Flood

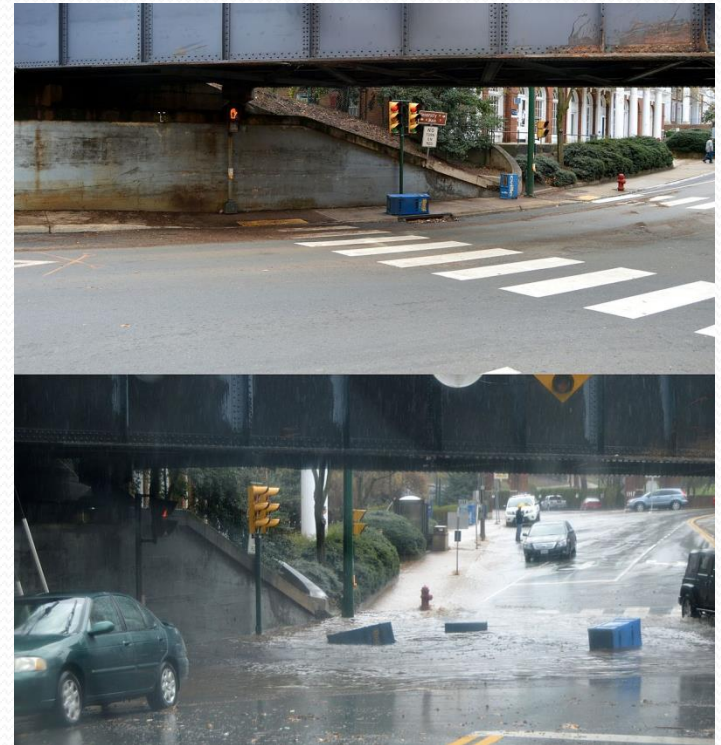
- Specific point along a river surpasses its flood stage, overcoming its banks because of persistent rainfall, snow melt, ice jam, and/or ice melt





# Flash Flood

- Is caused by excessive rainfall in a short period of time
  - Generally less than 6 hours.
- Can cause any size waterway to overflow its banks.
- Can occur even if no rain has fallen
  - A levee or dam has failed, or after a sudden release of water by debris or ice jam.
- A general idea of flash flooding in Davidson County
  - Urban criteria: 1-2+ inches per 1-2 hours or 3+ inches per 3-4 hours
  - Rural criteria: 2-3+ inches per 1-2 hours or 4+ inches per 3-4 hours



# Watch Out For National Weather Service Alerts:

- **Flash Flood Warning: Take Action!** A Flash Flood Warning is issued when a flash flood is imminent or occurring. If you are in a flood prone area move immediately to high ground. A flash flood is a sudden violent flood that can take from minutes to hours to develop. It is even possible to experience a flash flood in areas not immediately receiving rain.
- **Flood Warning: Take Action!** A Flood Warning is issued when the hazardous weather event is imminent or already happening.
- **Flood Watch: Be Prepared:** A Flood Watch is issued when conditions are favorable for flooding. It does not mean flooding will occur, but it is possible.
- **Flood Advisory: Be Aware:** A Flood Advisory is issued when flooding is not expected to be bad enough to issue a warning. However, it may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.

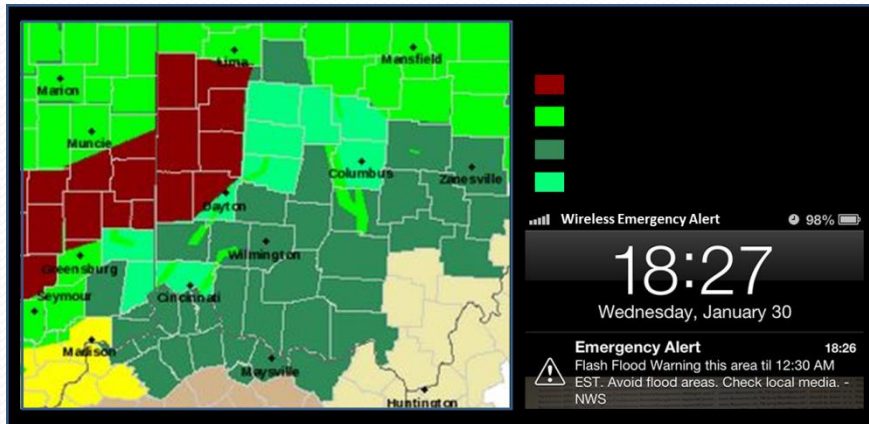
# What You Can Do Before A Flood

- Keep a National Oceanic and Atmospheric Administration (NOAA) Weather Radio or a battery-powered portable radio, bottled water, emergency cooking equipment, canned food, can opener, flashlights in working order with extra batteries, first aid kit, rubber boots and gloves.
- Have a professional install check-valves in plumbing
  - To prevent flood waters from backing up into the drains of your home.
- Keep your automobile fueled
  - If electric power is cut off, gas stations may not be able to operate pumps for days.
- Store drinking water in food-grade containers.
  - Water service may be interrupted.
- Keep a stock of food requiring little cooking and no refrigeration
  - Electric power may be interrupted.
- Keep first-aid supplies and prescription medicines on hand.
- Designate someone who lives and works outside of Davidson County as your emergency contact.
  - After a flood, contact this person to communicate your location, status and other key information.



Assemble a disaster supplies kit containing: first-aid kit, canned food and can opener, bottled water, rubber boots, rubber gloves, NOAA Weather Radio, battery-powered radio, flashlight, and extra batteries.

# What You Can Do Before A Flood



- Find out if you are located in a high-risk flood area.
  - Start with the flood maps published by the Federal Emergency Management Agency (FEMA).
- Know your flood risk and the elevation above which flooding occurs.
  - Do streams or rivers near you flood easily? If so, be prepared to move to a safe place. Know your evacuation routes.
- Determine if the roads you normally travel to reach your home or job will be flooded during a storm.
  - If so, look for alternative routes to use during flooding.
- Flooded roads may cut off your escape route. Head for higher ground before the water becomes too deep.
  - Remember – just six inches of rapidly flowing water can knock you off your feet.



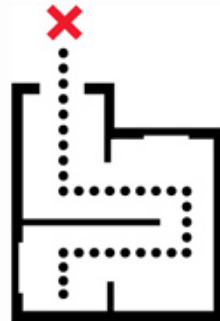
# What You Can Do Before A Flood

- If your home is in a high-risk flood zone, contact the company with whom you have home owners insurance and add the flood insurance policy provided by FEMA. You can also get more information about The National Flood Insurance Program (NFIP) at 1-888-379-9531 or visit their website at [www.FloodSmart.gov](http://www.FloodSmart.gov).
- Have an evacuation plan in place BEFORE flooding occurs. Everyone in your family should know where to go if they have to leave. Discussing flood plans ahead of time helps reduce fear, anxiety, and lets everyone know how to respond. For more information visit: <https://www.ready.gov/evacuating-yourself-and-your-family>

## Be Red Cross Ready



Get a Kit



Make a Plan



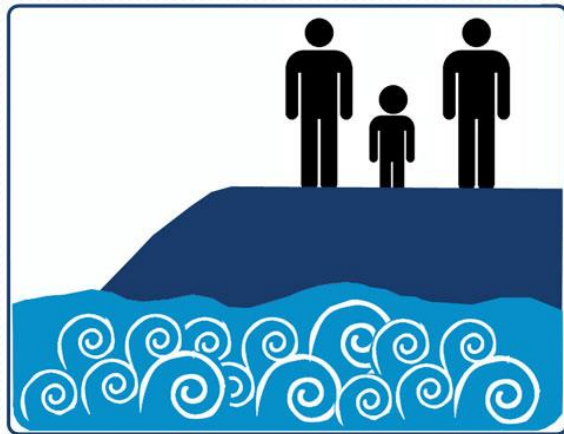
Be Informed

# What You Can Do During A Flood



- If advised to evacuate, do so immediately!
- Move to a safe area before access is cut off by flood water.
  - Get out of areas subject to flooding. This includes dips, low spots, canyons, washes, etc.
- Don't drive, if you don't have to.
- Families should use only one vehicle to avoid getting separated and reduce traffic jams.
- Continue listening to NOAA Weather Radio, radio or television for information concerning the flooding.
- Be especially cautious at night when it is harder to recognize flood dangers.

# What You Can Do During A Flood



- If you come upon a flowing stream where water is above your ankles, **STOP!** Turn around don't drown. Climb to higher ground.
  - Six inches of moving flood water can knock you off your feet.
- Never try to walk, swim, drive, or play in flood water.
  - You may not be able to see how fast the flood water is moving, see holes, washouts or submerged debris.
- Do not camp or park your vehicle along streams
- Children should **NEVER** play around high water, storm drains, etc.
  - It is very easy to be swept away by fast-moving water. flood water could be mixed with sewer water.

# What Is Turn Around Don't Drown™ (TADD)?

- TADD is a National Weather Service campaign to warn people of the hazards of walking or driving a vehicle through flood waters.
- Several counties in Eastern Oklahoma have Turn Around Don't Drown signs posted at locations where flash flooding often leads to water overtopping roadways





# Why is Turn Around Don't Drown™ Important?

- Each year, more deaths occur due to flooding than from any other severe weather related hazard
- The Centers for Disease Control reports that over half of all flood-related drownings occur when a vehicle is driven into hazardous flood water. The next highest percentage of flood-related deaths is due to walking into flood waters
- What can I do to avoid getting caught in this situation?
- Turn Around Don't Drown™



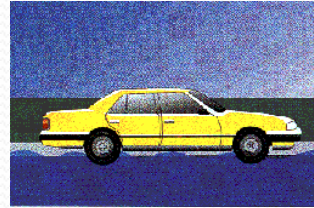
# Turn Around Don't Drown™



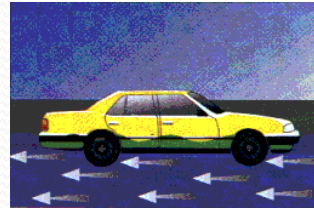
# Do Not Drive Through Moving Floodwaters Example

## Turn Around Don't Drown™ (TADD)

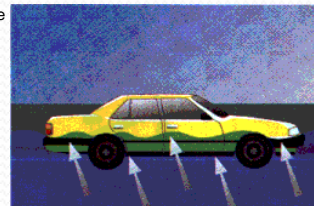
Water weighs 62.4 pounds per cubic foot and is typically flowing downstream at 6 to 12 miles an hour.



When a vehicle stalls in the water, the water's momentum is transferred to the car. For each foot the water rises, 500 pounds of lateral force are applied to the car.

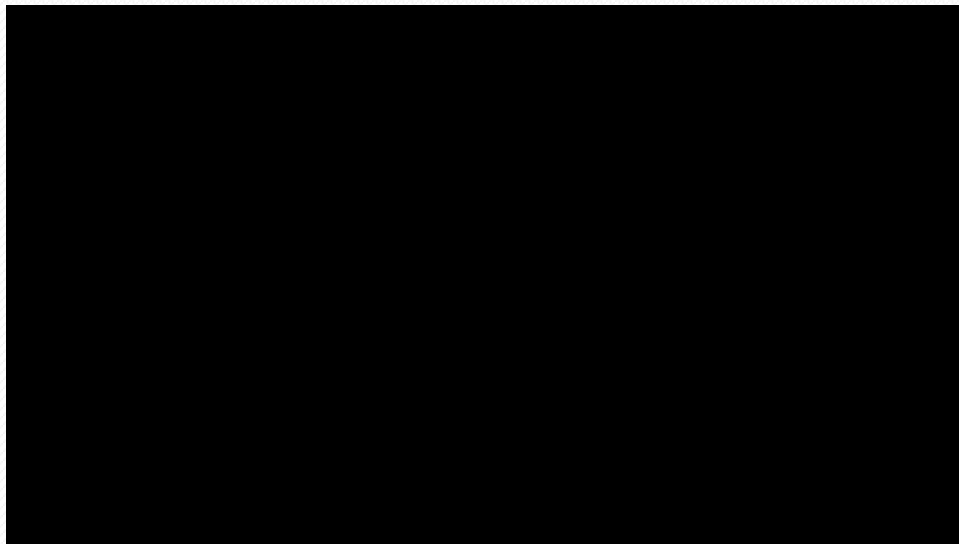


The biggest factor is buoyancy. For each foot the water rises up the side of the car, the car displaces 1,500 pounds of water. In effect, the car weighs 1,500 pounds less for each foot the water rises.



Two feet of water will carry away most cars - 1,000 pounds of lateral (or side force) plus 3,000 pounds of buoyancy!

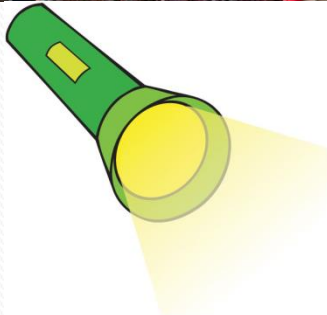




Turn Around Don't Drown PSA.mp4



# What You Can Do After A Flood



- Get necessary medical care at the nearest hospital.
  - The American Red Cross can help by providing shelters, food, water, and first aid, as well as helping you meet your immediate disaster-caused needs.
- If the power is out, use flashlights not candles.
  - Flammables may be inside.
- Boil drinking water before using.
  - If in doubt, call your local public health authority.
- If fresh or canned food has come in contact with flood waters, throw it out.

# What You Can Do After A Flood

- Do not visit disaster areas.
  - Your presence might hamper rescue and other emergency operations.
- Report broken utility lines to appropriate authorities.
- Ask a professional to evaluate your home for mold
- If you use well water, it must be tested by a licensed sanitarian before any water can be consumed.
- Use bleach to clean up your home
- Photograph damages to your property for insurance purposes
- Take steps to reduce your risk of future floods.
  - Make sure to follow local building codes and ordinances when rebuilding.
  - Use flood-resistant materials and techniques to protect yourself and your property from future flood damage.



# Summary

- Know Your Risk
- Prepare
  - Home
  - Family
- Stay Informed
- Avoid Flood Waters
  - Turn Around Don't Drown™
- Wait For “All Clear”
- Reduce Your Risk Of Future Flood Damage
  - Get Flood Insurance
  - Protect Your Home



Visit  
[www.FloodSmart.gov](http://www.FloodSmart.gov)

Or  
[www.floodsafety.noaa.gov](http://www.floodsafety.noaa.gov)  
for more information