

Dear neighbor,

If you've received this bulletin in the mail, it is because you have subscribed to Thurston County's community warning system or you have property in:

- the 100-year floodplain,
- a groundwater flooding area,
- a "flood of record" area.

This 2016 Flood Bulletin contains information on flood risks in Thurston County and disaster preparedness for your family, home, and vehicle. Our community is stronger when you prepare for disasters.

Cathy Wolfe
Thurston County Commissioner
-District One

Sandra Romero
Thurston County Commissioner
-District Two

Bud Blake
Thurston County Commissioner
-District Three

**EMERGENCY
PREPAREDNESS
EXPO 2016**

**SEPTEMBER 17
10AM - 3PM
ROCHESTER
MIDDLE SCHOOL**



**FLOOD
AWARENESS WEEK**

**OCTOBER
17-21**

Get preparedness tips throughout
the week @ThurstonEM



www.co.thurston.wa.us/em/expo

CONTACT INFORMATION



FIRE & POLICE

911. Call only for a life-threatening emergency. Call 360-704-2740 for local non-emergency inquiries.



THURSTON COUNTY EMERGENCY MANAGEMENT

360-867-2800



THURSTON COUNTY PUBLIC WORKS

360-867-2300



PUGET SOUND ENERGY

888-225-5773



THURSTON COUNTY RESOURCE STEWARDSHIP

360-754-3355, ext. 6647



HAZOHOUSE

360-867-2912



NATIONAL FLOOD INSURANCE

888-379-9531



STORMWATER POND INSPECTIONS

360-867-2095

CHECKLISTS

CAR



- Battery operated radio
- Flashlight, extra batteries
- Booster cables
- Boots & gloves
- Water
(at least one quart)
- Rain gear
- High energy food
(granola bars, raisins, etc.)
- Bright cloth to tie to the antenna as an alert if your car is stranded

To-Go



- Rain gear, warm clothes
- Flashlight, extra batteries
- First aid kit & medications
- Water
(at least one quart)
- Extra set of house & car keys
- Emergency medical information
- High energy food
(granola bars, raisins, etc.)

UNDER THE BED



- Sturdy shoes & socks
(there may be broken glass, or you'll need to walk a long way to safety)
- Leather gloves to protect hands from broken glass
- Hardhat to prevent head injuries by falling objects
- Flashlight and lightsticks - don't be caught in the dark!

FLOOD BULLETIN FALL 2016

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FLOODPLAINS & FLOODING

- What floodplains provide
- Protect natural floodplain functions
- Types of flooding
- Groundwater flooding
- Storm ponds
- Tracking area rivers
- Floodplain mapping

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PREVENT & PROTECT

- Prevent local flooding
- Protect your home from flood damage
- Understand construction regulations
- Get flood insurance today!
- Know your flood risk
- Find information on risk and insurance

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STAY INFORMED

- Subscribe to the AlertSense system
- Stay tuned with a weather radio
- Wireless emergency alerts

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BE PREPARED

- Make a plan
- Evacuation do's and don'ts
- Evacuating farm animals
- Checklists
- Contact information



Thurston County is recognized as a StormReady community by the National Weather Service. For more information on StormReady programs, visit www.stormready.noaa.gov.



FLOODPLAINS PREPARED

Floodplains and adjacent waters combine to form an ever-changing environment that provides many benefits, such as:

- natural aesthetics
- flood reduction
- minimizing stormwater runoff
- prevention of non-point water pollution.

For example, slowing floodwater allows sediments to settle, improving water quality. Natural vegetation filters impurities and uses excess nutrients.

WHAT FLOODPLAINS PROVIDE

flood and erosion control

Floodplains develop ways to handle flooding and erosion with natural features that provide floodwater storage and passage. This reduces flood speeds, volume peaks, and curbs sedimentation.

biological resources

Floodplains support a high rate of plant growth. This helps to maintain biodiversity and the integrity of ecosystems.

higher quality of life

Floodplains benefit people by providing soil for farming, recreational opportunities, and scientific knowledge. Understanding that floodplains are community assets, not "problem areas," can improve the quality of life for all residents. Parks, bike paths, open spaces, wildlife conservation areas, and aesthetic features are important to citizens. Assets like these make the community more appealing to potential employers, investors, residents, property owners, and tourists.

EVACUATION DO'S AND DON'TS

-  **DO** Prepare a Go-Kit with essential items such as food, water, medications, a flashlight, a battery operated radio, and extra batteries.
-  **DO** Fill your gas tank.
-  **DO** Develop a get-away plan that includes at least two additional reliable sources of transportation-- a friend, relative, or other means.
-  **DO** Tell a friend or relative when you leave home and where you are going.
-  **DO** Take copies of important documents.
-  **DON'T** Don't walk through flowing water. Drowning is the number one cause of flood deaths. Six inches of moving water can knock you off your feet.
-  **DON'T** Don't drive around road barriers. The road or bridge may be washed out!
-  **DON'T** Don't drive on flooded roads. "Turn around, don't drown!" Even if you can see the road under the water, don't drive on it! As little as 18 inches of water can float a small car. If your vehicle stalls in high water, abandon it quickly and climb to higher ground.

EVACUATING FARM ANIMALS



- Have transportation available and train animals to board vehicles.
- List neighbors within a 100-mile radius willing to board your animals if forced to evacuate.
- Identify local organizations prepared to rescue and house displaced livestock.
- Involve family and neighbors in making an evacuation plan for animals in barns and outlying buildings.
- Keep a supply of feed at a separate location that could be air-dropped if animals become stranded.
- Assemble leads, halters, species-specific first aid kits, quieting hoods for easy transport, and water.
- Keep photos of you with your pet and a copy of your ownership papers or brands with you at all times, in case you are separated from your animals.

PROTECT NATURAL FLOODPLAIN FUNCTIONS

-  **1** Don't clear or build in a flood plain.
-  **2** Maintain native vegetation along streams and rivers.
-  **3** Do not dump anything in storm drains, ditches, or waterways.

BE & FLOODING

MAKE A PLAN

Disasters can strike with little or no warning. That's why it is important to be prepared today for what might happen tomorrow.



Stay in touch

In a disaster, the first thing many of us reach for is a phone. In the heat of the moment, we might not remember the numbers for our spouse's work or our children's school.

- List work, cell, and school phone numbers for each family member on a laminated emergency contact card to keep in your purse, wallet, or backpack.
- Remember to list secondary landline numbers.
- Include the number of an out-of-state friend or relative you can all use as a check-in contact.



Evacuate safely

Create a floor plan of your home. Mark exits, utility shut-offs, and the location of disaster kits. Make sure household members know all safe exits. Share this information with babysitters and visitors.



Pick a meeting place

Choose two locations for everyone to meet in case you are separated when disaster strikes. One place should be near your home. The second place should be away from your neighborhood, in case returning home is impossible.



Protect your pets

- Ensure your pet is prepared and protected.
 - Keep their vaccinations up-to-date and their records handy.
 - Have carriers large enough for your pets to stand and turn around
- Know where pets can go during a disaster - friend, family member, pet-friendly hotel, animal shelter, or boarding facility.
- Prepare out-of-state contact information on your pets' ID tags, microchip registrations and licenses.
- Include a go-kit of leashes, collars, extra ID tags, water, food, medications, health records, and photos to prove ownership.

TYPES OF FLOODING

Rivers, lakes, coastlines and other sources, can independently cause flooding. However, they often combine to make floods more severe.



RIVER FLOODING

Rivers flood when too much rain falls in too short a time for the river to carry it away. The severity is increased when the ground is frozen and cannot absorb rain, when melting snowpack loads excess water into the system, and when high tides and winds block or slow water movement, causing it to back up in the river.

Coastline flooding along Puget Sound can occur from "King Tides," but generally is a combination of other factors. High tides, high on-shore winds, and runoff all contribute to coastal flooding.



MARINE COASTAL FLOODING



URBAN FLOODING

Urban flooding is on the rise. As more forest land is converted to lawns, lots, and impervious surfaces, rainwater absorption decreases and runoff increases. Our current drainage system cannot handle all the runoff. Storms are also featuring a higher rate of rain over shorter periods of time, increasing flood risk. Instead of five inches of rain in 72 hours, we now receive that much rain in 24-36 hours.

Lake flooding results when more water goes into the lake than runs out. As a result, the lake level rises, flooding low areas. Many factors combine to cause lake flooding, such as storm intensity, groundwater levels, soils, snowpack, outlet size, frozen ground, wind, and urbanization.



LAKE FLOODING



GROUNDWATER FLOODING

Groundwater flooding is generally caused by two or more seasons of above-normal rainfall, including a cool wet summer. The first wet season elevates groundwater levels, followed by a cool wet summer which keeps the level elevated. Flooding likely begins with the next above-normal rainy winter. In Thurston County there appears to be an emerging pattern of higher groundwater levels later in the spring due to higher-than-usual spring rains.

FLOODPLAINS INFORMED

GROUNDWATER FLOODING

- Two primary causes of groundwater flooding include:
- Consecutive monthly rainfall of more than 10 inches per month, and
 - Extended rainfall during the course of a year.

Both causes keep groundwater levels elevated for long periods of time - leading to damaged structures and contaminated wells.



It can take as long as five years for groundwater to move through underlying soils and into the local rivers and lakes. This means flooding can be delayed or extended over a longer period of time.

The highest risk of groundwater flooding is in the Salmon Creek Basin located near the Olympia Regional Airport. Other high-risk locations include the area east of Lacey and outside of Yelm.

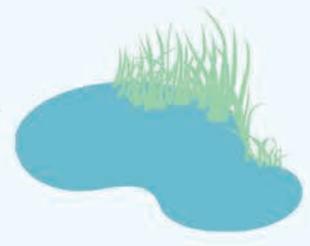
The greatest influence on how much rain is received in Thurston County comes from Pacific weather patterns. Phenomena such as El Niño cause dry, warmer weather, whereas La Niña causes wet, cooler weather. The National Weather Service (NWS) is forecasting a La Niña pattern during the 2016-2017 winter. This may result in above-normal rainfall and below-normal average temperatures.

To better understand our local rainfall events, global weather patterns, and effects on our groundwater levels, Thurston County installed a monitoring network that tracks precipitation and groundwater levels several times a day. This data is available at: www.co.thurston.wa.us/monitoring. As of July 2016, groundwater levels were about average throughout the county.

STORM PONDS

Rainfall, and other urban runoff, is carried to local waterways via a network of stormdrains, ditches, and channels. To prevent too much water from entering a creek or river too quickly, storm ponds are created to hold water back so waterways are not overwhelmed every time it rains.

Thurston County Water Resources conducts routine storm pond inspections and offers technical advice and assistance. Drainage problem? Contact Cathe Linn at LinnCa@co.thurston.wa.us or 360-867-2095. For more information on stormwater facilities, or to register for a free storm pond maintenance workshop, visit the county's stormwater site at www.co.thurston.wa.us/stormwater.



FLASH FLOOD WARNINGS ARE ISSUED WHEN FORECASTS INDICATE RIVERS MAY APPROACH FULL BANK LEVELS. LOCAL MEDIA, SUCH AS KGY RADIO 95.3 FM, KAYO/KYYO 96.9 FM, AND KAOS 89.3 FM WILL RE-BROADCAST THESE WARNINGS.



Flood watch versus flood warning

- When a *flood watch* is issued, prepare for the possibility of a flood.
- When a *flood warning* is issued, flooding is imminent, generally within 12 hours, or it is occurring. Stay tuned to a local radio station for further information and be prepared to take quick action, if needed.

Flood information on the web

Visit the County's Emergency Management site at www.co.thurston.wa.us/em for flood-related media advisories and links to National Weather Service warnings and USGS real-time river gage readings (see page 4 for local river information and links). You'll also find links to FEMA, the Washington State Emergency Management Division, the American Red Cross, and other disaster information sites.

Chehalis Early-Warning System

The Chehalis River Basin Flood Authority installed an early-warning system for basin residents. The system provides real-time access to flooding data, information, and maps, as well as rain, stream, reservoir, wind, temperature, and other weather information. Access the site at: chehalis.onerain.com.

STAY & FLOODING

WIRELESS EMERGENCY ALERTS

SEVERE WEATHER ALERT

THE NATIONAL WEATHER SERVICE SENDS WARNINGS FOR TSUNAMIS, TORNADOES, FLASH FLOODS, EXTREME WINDS, BLIZZARDS, ICE STORMS, DUST STORMS, AND HURRICANES.



Wireless Emergency Alerts (WEAs)

WEAs are alert messages sent to mobile devices to notify you of imminent threats to safety, missing persons in the area, and dangerous weather. The service is free and automatic – you don't have to sign up or download an app. No matter where you are, if your cell is WEA-capable, you will get these wireless alerts.

WEAs will automatically pop up on your screen—you don't have to unlock your phone to read them. Regardless of where you are, this service will send alerts appropriate to your real-time location.

Get more information about Wireless Emergency Alerts on your cell phone at www.co.thurston.wa.us/em/alertsense.

TRACKING AREA RIVERS

Register for flood alerts with Thurston County and the U.S. Geological Survey at www.co.thurston.wa.us/em/alertsense. Find river specific information under the "rivers" menu option. For more information about potential flood risks for specific river areas, visit the web pages below. Call 360-867-2800 if you need assistance.

Nisqually River

NWS issues a flood warning when water levels could potentially reach 10 feet or higher. <http://waterdata.usgs.gov/nwis/uv?12089500>

Skookumchuck River

NWS issues a flood warning when water levels could potentially reach 13.5 feet. Moderate flooding occurs at 15 feet and major flooding results when water levels reach 17 feet.

<http://waterdata.usgs.gov/nwis/uv?12026400>

Chehalis River

NWS issues a flood warning when water levels could potentially reach 14 feet. Major flooding occurs at 17.5 feet.

<http://waterdata.usgs.gov/nwis/uv?12027500>

Deschutes River

NWS issues a flood warning when water levels could potentially reach 11 feet. Moderate flooding occurs when the height exceeds 13.5 feet. Deschutes River rises and falls at a faster rate than any other Thurston County river.

<http://waterdata.usgs.gov/nwis/uv?12079000>

FLOODPLAIN MAPPING

Floodplains are always changing. FEMA updates their digital flood insurance rate maps as data becomes available. Changes include topography, precipitation patterns, flow dynamics of rivers, and average temperature variations. The county has adopted FEMA's latest version. They can be viewed at www.geodata.org or www.floodsmart.gov. Hardcopies can be viewed at the County Permit Assistance Center, 2000 Lakeridge Dr. SW, Olympia.

Updates to Thurston County maps

- Thurston County and FEMA have revised and remapped the Deschutes River watershed floodplain. The maps will be official late 2016.
- The marine coastal floodplain maps are under review and should be adopted December 2016.
- The Lower Chehalis maps will include the Skookumchuck, Scatter Creek and Lower Black River to Gate. These are expected to be completed late 2016 and adopted mid-2017.

For more information, contact Andrew Kinney at 360-867-2827.

Since 1962, Thurston County has been declared a federal disaster area 24 times - floods accounting for 17 of the declarations. Local flooding can be devastating, as seen during the December 2007 Chehalis River flooding in rural Rochester. More than \$3 million in damage occurred to 165 homes and 63 county residents needed rescue.

PREVENT INFORMED

PREVENT LOCAL FLOODING

Keep your storm pond clear



Keep weeds and trees from overtaking the pond area. Leaves, branches, yard waste, and litter can clog pipes and reduce drainage capacity. If done regularly, most vegetation maintenance requires little expertise and minimal equipment. However, if you have a large pond or one requiring extra attention, you may need skilled labor and special equipment.

Keep ditches and swales trash-free



Good drainage helps reduce flooding. The county's Public Works Department monitors and clears ditches and culverts throughout the year, with a special emphasis on problem areas in the rainy winter months. Never dump trash, Christmas trees, tires, or other materials into streams, ditches, or other waterways. It is against the law (Article V of the county's Sanitary Code).

PROTECT YOUR HOME FROM FLOOD DAMAGE

The county regulates floodplain development to protect the public and minimize flood losses.



Prior to building consider the following:

- Homes vulnerable to floods must include flood protection when built.
- There are restrictions on building new structures within the 100-year floodplain, including regulations on filling, tree-cutting, grading, and other development that may increase flood damage.

When requested, staff can visit your property to answer questions specific to your site, to discuss flooding, drainage, sewer backflow devices for flooding, and provide retrofitting advice. The county also has historical data regarding flooding in unincorporated Thurston County and can provide information on pre-flood and post-flood financial assistance including flood insurance, grants, loans, rebates, and other programs offered by federal, state, and local governments.

When is the next AlertSense test call?

AlertSense subscribers will receive a test call between 9 a.m. and 5 p.m. during the week of October 17 – 21. You don't have to be home during the test. If you have questions, or if you're a phone alert system subscriber and do not receive a test call that week, please contact Emergency Management at 360-867-2800.



How do I subscribe to AlertSense?

Subscribe at www.co.thurston.wa.us/em/alertsense. Indicate your preferred numbers for emergency notifications. You can also mail or phone your information to:



Thurston County Emergency Management
9521 Tilley Road SW
Olympia, WA 98512
Phone: 360-867-2800

Please call us if you are currently subscribed but no longer wish to receive river alert notifications.

STAY TUNED WITH A WEATHER RADIO

RECEIVE UP-TO-THE-MINUTE ADVISORIES FROM THE NATIONAL WEATHER SERVICE AT ANY TIME. YOU CAN PURCHASE PRE-TUNED, BATTERY-POWERED WEATHER RADIOS FROM MOST ELECTRONIC STORES, STARTING AT ABOUT \$30.

TOP MODELS FEATURE SPECIFIC AREA MESSAGE ENCODING (SAME) TECHNOLOGY, WHICH CAN BE PROGRAMMED TO SOUND ALERTS FOR SELECTED CONDITIONS IN SELECTED AREAS.

BROADCAST INFORMATION

FREQUENCY: 162.475 MHz

CHANNEL: 4

THURSTON COUNTY SAME CODE: 053067



STAY & PROTECT

SUBSCRIBE TO THE ALERTSENSE SYSTEM



What is AlertSense?

Thurston County's free-of-charge community warning system.

When is AlertSense activated?

AlertSense is activated when Emergency Management believes residents need a heightened level of warning to protect life or property. The alerts can be related to hazards requiring a type of action, such as boiling water or seeking shelter, or non-emergency notifications, such as extended police or fire activity.

How does AlertSense work?

It can send alerts via text message, email, pager, or social media, depending on your preference. Emergency Management needs your address, preferred method of contact and which type of alerts you'd like to receive. If you provide your address the system will only send you alerts about events in your area.

What are AlertSense's limitations?



Several Caller ID features such as "anonymous call rejection" and "security screen" can interfere with receipt of emergency notifications. If you use any call screening services, contact Emergency Management for more information. These alerts are provided free-of-charge, however, standard text messaging rates and other charges may apply.

Keep stormwater drains clear



Leaves, fir tree needles, dirt, and trash are swept into storm drains during heavy rains, often clogging them and causing local flooding. Take preventive measures by never sweeping or hosing materials such as beauty bark into the street or gutter. If flooding occurs in your neighborhood's streets during heavy rain, grab a rake and safely clear the drain of debris. Report clogged roadside ditches or culverts to Thurston County Public Works 360-867-2300.

FOR MORE INFORMATION ON FLOOD PREVENTION

visit www.co.thurston.wa.us/em
or call Tim Rubert at 360-754-3355, ext. 6647

UNDERSTAND CONSTRUCTION REGULATIONS



Anchor and raise outdoor equipment, fuel tanks, air-conditioning units, and generators above flood level. Unanchored fuel tanks can break free and contaminate the ground. Never leave electrical power units and generators on the ground. These backup facilities will be inundated by water and become useless.



Make openings in foundation walls to allow water to flow in and out. This can help prevent the walls from collapsing.



Install back-flow valves or plugs for drains, toilets, and other connections to prevent floodwaters from entering your home.



Store hazardous materials like paint, pesticides, and fertilizers inside plastic buckets off the floor. Take unwanted hazardous materials to the HazoHouse. Call (360) 867-2912 for hours and details. No latex paints are accepted.



Elevate or relocate furnaces, water heaters, appliances, and electrical panels. Better yet, elevate your home above possible flood levels on a new foundation. Contact Emergency Management for possible assistance on applying for a grant to elevate your home.



Install sump pumps with their own backup power in crawl spaces or basements.

PREVENT & PROTECT

GET FLOOD INSURANCE TODAY!



Only after flood waters recede do many homeowners and renters discover the truth - **standard homeowners and renters insurance does not cover flood damage.** Just a few inches of water can cause thousands of dollars in home damage. Those without flood insurance are left holding steep bills.



If a property is no longer in the floodplain, the lender may not require flood insurance. But it's critical to keep flood insurance if the property has a history of flooding. Mortgage companies may require properties added to the floodplain to carry flood insurance.



FEMA aid is only available when the president declares a disaster. Not all floods are federally-declared disasters.

And federal aid is often given as a loan that must be paid back with interest.



Flood insurance policies have a 30-day waiting period before they take effect, so protect yourself as soon as possible and get your flood insurance now.



Flood insurance is not just for homeowners. There are flood insurance policies for farms, commercial buildings, and policies that cover a home's contents for renters.



You can buy national flood insurance even if your home has flooded before.

It's the only dependable financial protection against flood damage.



National Flood Insurance Program policies are sold through many private insurance companies. For rate information, contact an insurance agent.



The National Flood Insurance Program offers policy holders in high risk areas up to \$30,000 to help pay the costs of bringing a home or business into compliance with local flooding regulations. Called increased cost of compliance (ICC) coverage, this policy benefit is separate and in-addition to standard coverage that pays for home and property damage. ICC claims are adjusted separately from flood damage claims and can only be filed if the county determines a property has been substantially or repeatedly damaged by flood.

THURSTON COUNTY RESIDENTS ARE ELIGIBLE FOR UP TO 30% OFF FLOOD INSURANCE!

KNOW YOUR FLOOD RISK

Visit the county's GeoData web site, www.geodata.org, to begin researching the flood risk in specific areas or land parcels. Maps are not 100% accurate for every parcel, but they can provide a lot of information about flood zones, high groundwater areas, watersheds, and nearby water bodies.



Another source is FEMA's website, www.floodsmart.gov. It provides flood maps, detailed information about flooding, and can estimate the cost of home damage at various flood levels.

FIND INFORMATION ON RISK AND INSURANCE

- For National Flood Insurance information, including a list of providers, call 888-379-9531, or visit www.floodsmart.gov.
- For FEMA-related questions, contact Kristin Minch, FEMA Region X, 206-438-2607.
- For information on the ICC policy benefit visit www.fema.gov/increased-cost-of-compliance-coverage.

