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## ***Part 4: DEVELOPING THE MITIGATION PLAN***

### **What is Mitigation?**

Mitigation involves long-term actions taken to protect lives and reduce the impact of disasters on the built environment (i.e., roads, bridges, buildings). At a minimum, mitigation measures must be technically feasible, cost effective and environmentally sound.

### ***Overview***

This section of the Oneida County Hazard Mitigation Plan fully describes the mitigation strategies that the communities have proposed. The resulting strategies started as projects on a “wish list”. Community representatives on the Planning Committee were encouraged to consider projects regardless of size, cost, time, or popularity. Once the first draft of the “wish list” was provided to community representatives for review, the items on the list were refined in order to create mitigation strategies. Each community representative was encouraged to work with officials from their municipality in order to develop specific and realistic mitigation strategies. Once the content of the mitigation strategies was settled, community representatives prioritized projects using the STAPLEE criteria. STAPLEE is a cost:benefit analysis tool and includes considerations for Social, Technical, Administrative, Political, Legal, Environmental and Economic issues. Each of these items are assigned a positive or negative value. A score of +7 is an indication that there are not any major obstacles to completing the project. A score of -7 indicates that several obstacles exist that would prevent the proposed project from being completed. Most mitigation strategies have at least one obstacle and, very frequently, this obstacle is economic. Part of putting the mitigation strategies in a prioritized list is being able to justify the need for a project should funding become available.

### ***Explanation of Table 4-2***

Mitigation strategies listed in Table 4-2 are sorted in several ways. The following is an explanation of the information contained in Table 4-2:

**Hazards:** This category describes the specific hazard that each mitigation strategy will address.

**Mitigation Type:** Mitigation Strategies can fall into one of seven types of action categories. These include:

- emergency services,
- disaster prevention,
- education and awareness,
- structural projects,
- property protection actions, and
- natural resource protection.

**Keywords:** A keyword has been assigned to each mitigation strategy in an effort to provide an overall summary of projects. The keywords and definitions are shown in Table 4-1.

**STAPLEE:** Each of the STAPLEE criteria have a unique column. Please see the description of the STAPLEE process above.

**Social:** If the community is in favor of the project, a +1 was assigned; if the sentiment in the community would be negative for the proposed project, a -1 was assigned.

**Technical:** If the project required highly technical review or effort, a -1 was assigned. If the completion of the project does not involve technical complications, a +1 was assigned.

**Administrative:** If the project would not add undue burden to the local municipality or administrative body, a +1 was assigned. If the project would add a great deal to the workload of the administrative body (extra contracts, meetings, communication, etc), a -1 was assigned.

**Political:** This is similar to the Social criterion.

**Legal:** A +1 was assigned to a mitigation strategy if there was not a requirement for extra legal assistance. A -1 was assigned if extensive legal difficulties were likely to be encountered.

**Environmental:** A mitigation strategy was assigned a -1 for this criterion if extensive permits were required to complete the project or if the project would be detrimental to the environment. A +1 was assigned if there would be a positive environmental benefit and/or if extensive permitting was not necessary.

**Economic:** Many strategies received a -1 as funding is not readily available in any fashion for the proposed projects. Grants and/or loans must be identified and applied for. The most prevalent mitigation strategy on the list is for generators for temporary community shelters. There does not appear to be a funding source for these items, therefore, the economic criterion was assigned a -1. If funding was readily available, the strategy received a +1.

**Score:** Each of the 7 STAPLEE criteria were tallied to determine the overall score. Those with the highest overall score were considered high priorities. Those with the lowest overall score were considered low priorities.

**Approximate Cost:** Each mitigation strategy was assigned an approximate cost. As many of these strategies are in the very earliest of planning stages, it would be irresponsible and inaccurate to assign a specific cost to the project. Therefore, each project was assigned a range between Very High (>\$100,000) or Low (<\$10,000).

**Funding Source and Funding Status:** These categories identify the possible source of funds for each proposed strategy. As mentioned in the Economic portion of the STAPLEE description, most of the proposed mitigation strategies do not have a specific or reliable funding source as yet. However, if the proposed projects were readily fundable, they probably would have already been installed. This plan is a starting point to find funding to install the highest priority projects. Appendix E is from the State's Hazard Mitigation Plan and includes a comprehensive list of funding sources for mitigation projects.

**Timeline:** This category describes the length of time that a project will take to complete including applying for funds.

**Lead Agency and Supporting Agencies:** Both of these categories have the same key. A lead agency is designated for each strategy to describe the organization likely to lead the project. As no project would likely be completed without the support of a team, the supporting agencies are listed for each mitigation strategy.

**Table 4-1: Mitigation Strategies Summary**

<b>KEY</b>	<b>Description</b>	<b>Community Strategies</b>
<b>A = Acquisition</b>	Acquisition or relocation of structures that are located in hazard prone areas.	bv3; flo 1; par1; ro1; sc5; vnT2;
<b>B = Best Management Practices</b>	identification, repair and maintenance of structures. May include practices related to infrastructure and erosion control.	nht5; krk/cl6; mcy1; hp3; df1; pro3; ava1; bv1; ag2; wv/sang1; nht4; trtn3; ofls2; ofls3; ag1; st2; sb2; va3; ofls1; bw1a; or3; yv2; camv1; ava2
<b>BC = building codes</b>	Includes ensuring that proper specifications are followed for new construction. Also includes regulations to prohibit construction in hazard prone areas.	fp5; ava5; bv4; cly2;
<b>CH = channel maintenance</b>	Includes identifying stream blockages and working with appropriate agencies to remove the material using environmentally sound practices.	hy2; df3; ml4; bw2; krk/cl1; camv2; nhv3; camt3; fp1; bv2; trtn3; ut2; wtb3; wtb4;
<b>CR = critical facilities protection</b>	Includes projects that identify and/or protect potential shelter areas and includes proposals to obtain generators for these facilities. NO FUNDING SOURCE!!	ofls4; yv3; nc1; ne4; remv5; nw1; vi1; flo9; va4; shl1; fld1; trtn2; camt1; remv3; cly1;
<b>D = dams/reservoirs</b>	Includes projects that include repair and maintenance of existing dams.	wv/sang2; cly4; krk/cl7; lee1

<b>DR = design review standards</b>	Refers to the review of proposed projects to minimize the vulnerability to natural hazards both to new and existing facilities.	sc6; bwt1
<b>EM = emergency response services</b>	Includes projects that encourage communication and provide vital services (potable water, alternate fuel) following a natural hazard.	wt1; krk/cl3; krk/cl4; remt1; remv1; flo6; mcy; df4; fp2; ml1; cly3; ne1; ne5; ne6; sc4; w4; nhv4; nc3; sc2;
<b>EV = environmental review standards</b>	Ensure that logging operations and construction activities adhere to existing regulations to protect water resources and prevent erosion.	cly6
<b>HZ = hazard threat recognition</b>	Mostly includes tree pruning activities in developed areas where dead or dying tree limbs in contact with utility lines could cause power outages.	s1; va1; fp4
<b>HW = hazard warning system</b>	Includes the forthcoming Reverse-911 system to be instituted in Oneida County. Also includes other warning systems that can be instituted on a local level.	remt2
<b>HE = health &amp; safety maintenance</b>	Includes projects such as dry hydrant installation for rural fire departments. Also includes identification and location of vulnerable residents who may be in need during and after a disaster. Projects here also include developing a list of shelters for each community.	flo7; nc2; sc1; st1; ava3; we2; va2; nc4; ava4; ml2; lee2; sb1; sb3; w2; flo5; ne2; bvld1; flo2
<b>PD = Post-disaster mitigation</b>	Obtaining equipment and/or labor to expedite post-disaster cleanup and repairs.	bvld3; flo8; sc3; bvld4; w3; pro2;
<b>PE = Public Education &amp; outreach</b>	Education of the public regarding disaster preparedness.	ne3; nht2; nw2; wtb2; ne8; oc1; nc5;
<b>RE = Real Estate Disclosure</b>	Ensure that potential homebuyers and builders are aware of potentially hazard prone areas.	an1

<p><b>RF = Structural Retrofit</b></p>	<p>Similar to BMPs; May include projects such as the extension of public water to residents with inadequate water supplies. May include repair/replacement of faulty septic systems. May also address recurring and large scale flood prevention projects.</p>	<p>krk/cl2; nht3; wd1; onclst1; vnt4; vnv1; or1; ut1; wtb1; remv4; ml3; krk8; krk9; or2</p>
<p><b>SW = stormwater management regs</b></p>	<p>Includes the regulations that are part of the DEC's Municipal Separate Storm Sewer System (MS4) permit to protect surface water quality from contamination due to stormwater.</p>	<p>bw1b; nym1; camv4; nhv1;</p>
<p><b>SC = stream corridor restoration</b></p>	<p>Similar to channel maintenance; may include streambank stabilization projects.</p>	<p>cly5; bvl2; we1; ofls5; ofls6; krk/cl10; sc7; yv1; wtb5; nht1; nc6; pro4; we3; vnt3;</p>

***Hazard Mitigation Strategies:*** The importance of public education and outreach for disaster preparedness cannot be overstated. The following section is included for public awareness regarding natural hazards of concern in Oneida County and its communities. References for this section include publications from the following:

- American Red Cross
- National Weather Service
- FEMA
- NYSEMO
- NYDOH
- Cornell Cooperative Extension provided information about Drought mitigation.

***Utility Failure***

Severe storms, ice storms, winter storms, tornadoes, hurricanes and extreme temperatures can all result in utility failure. The impact of a utility failure can range from minor inconvenience to life threatening for disable residents. There are several ways to protect the population during a utility failure. These include:

- Work with residents, fire departments, utility providers and health care professionals to identify vulnerable residents who may need special assistance during a utility failure.
- Educate the public about the location of the nearest Red Cross Certified Shelter.
- Educate residents on the components of a disaster preparedness kit for the home.

**IF YOU OR SOMEONE YOU KNOW COULD BE IN DANGER AS A RESULT OF A UTILITY FAILURE, YOU CAN CONTACT YOUR UTILITY PROVIDER TO LET THEM KNOW EXTRA HELP MAY BE NECESSARY.**

### ***FAMILY DISASTER PLAN***

Families should be prepared for all hazards that affect their area and themselves. NOAA's National Weather Service, the Federal Emergency Management Agency, and the American Red Cross urge each family to develop a family disaster plan. Where will your family be when disaster strikes? They could be anywhere at work, at school, or in the car. How will you find each other? Will you know if your children are safe? Disasters may force you to evacuate your neighborhood or confine you to your home. What would you do if basic services - water, gas, electricity or telephones - were cut off?

Follow these basic steps to develop a family disaster plan...

**I. Gather information about hazards.** Contact your local National Weather Service office, emergency management office or civil defense office, and American Red Cross chapter. Find out what type of disasters could occur and how you should respond. Learn your community's warning signals and evacuation plans.

**II. Meet with your family to create a plan.** Discuss the information you have gathered. Pick two places to meet: a spot right outside your home for an emergency, such as fire, and a place away from your neighborhood in case you can't return home. Choose an out-of-state friend as your "family check-in contact" for everyone to call if the family gets separated. Discuss what you would do if advised to evacuate.

### **III. Implement your plan.**

- post emergency telephone numbers by phones;
- Install safety features in your house, such as smoke detectors and fire extinguishers,
- Inspect your home for potential hazards (such as items that can move, fall, break, or catch fire) and correct them;
- Have your family learn basic safety measures, such as CPR and first aid; how to use a fire extinguisher; and how and when to turn off water, gas, and electricity in your home;
- Teach children how and when to call 911 or your local Emergency Medical Services number; (6) Keep enough supplies in your home to meet your needs for at least three days. Assemble a disaster supplies kit with items you may need in case of an evacuation. Store these supplies in sturdy, easy-to-carry containers, such as backpacks or duffle bags. Keep important family documents in a waterproof container. Keep a smaller disaster supplies kit in the trunk of your car.

**A DISASTER SUPPLIES KIT SHOULD INCLUDE:** A 3-day supply of water (one gallon per person per day) and food that won't spoil one change of clothing and footwear per person one blanket or sleeping bag per person a first-aid kit, including prescription medicines emergency tools, including a battery-powered NOAA Weather Radio and a portable radio, flashlight, and plenty of extra batteries an extra set of car keys and cash special items for infant, elderly, or disabled family member.

**IV. Practice and maintain your plan.** Ask questions to make sure your family remembers meeting places, phone numbers, and safety rules. Conduct drills. Test your smoke detectors monthly and change the batteries at least once a year. Test and recharge your fire extinguisher(s) according to manufacturer's instructions. Replace stored water and food every six months.

*More tips for Utility Failures include the following:*

**(Source: American Red Cross)**

**Top Safety Tips for a Blackout**

- Only use a flashlight for emergency lighting. Never use candles!
- Turn off electrical equipment you were using when the power went out.
- Avoid opening the refrigerator and freezer.
- Do not run a generator inside a home or garage.
- If you use a generator, connect the equipment you want to power directly to the outlets on the generator. Do not connect a generator to a home's electrical system.
- Listen to local radio and television for updated information.

**How Can I Prepare Before a Blackout Happens?**

Assemble essential supplies, including:

- Flashlight
- Batteries
- Portable radio
- at least one gallon of water
- a small supply of food.
- Due to the extreme risk of fire, do not use candles during a power outage.
  
- If you have space in your refrigerator or freezer, consider filling plastic containers with water, leaving about an inch of space inside each one. (Remember, water expands as it freezes, so it is important to leave room in the container for the expanded water). Place the containers in the refrigerator and freezer. This chilled or frozen water will help keep food cold if the power goes out, by displacing air that can warm up quickly with water or ice that keeps cold for several hours without additional refrigeration.
- If you use medication that requires refrigeration, most can be kept in a closed refrigerator for several hours without a problem. If unsure, check with your physician or pharmacist.
- If you use a computer, keep files and operating systems backed up regularly. Consider buying extra batteries and a power converter if you use a laptop computer. A power converter allows most laptops (12 volts or less) to be operated from the cigarette lighter of a vehicle. Also, turn off all computers, monitors, printers, copiers, scanners and other devices when they're not being used. That way, if the power goes out, this equipment will have already

been safely shut down. Get a high quality surge protector for all of your computer equipment. If you use the computer a lot, such as for a home business, consider purchasing and installing an uninterruptable power supply (UPS). Consult with your local computer equipment dealer about available equipment and costs.

- If you have an electric garage door opener, find out where the manual release lever is located and learn how to operate it. Sometimes garage doors can be heavy, so get help to lift it. If you regularly use the garage as the primary means of entering your home upon return from work, be sure to keep a key to your house with you, in case the garage door will not open.
- If you have a telephone instrument or system at home or at work that requires electricity to work (such as a cordless phone or answering machine), plan for alternate communication, including having a standard telephone handset, cellular telephone, radio, or pager. Remember, too, that some voice mail systems and remote dial-up servers for computer networks may not operate when the power is out where these systems are located. So even if you have power, your access to remote technology may be interrupted if the power that serves those areas is disrupted. Check with remote service providers to see if they have backup power systems, and how long those systems will operate.
- Keep your car fuel tank at least half full because gas stations rely on electricity to power their pumps.
- Follow energy conservation measures to keep the use of electricity as low as possible, which can help power company(ies) avoid imposing rolling blackouts.

- **Specific Information for People With Disabilities**

If you use a battery-operated wheelchair, life-support system, or other power-dependent equipment, call your power company before rolling blackouts happen. Many utility companies keep a list and map of the locations of power-dependent customers in case of an emergency. Ask them what alternatives are available in your area. Contact the customer service department of your local utility company(ies) to learn if this service is available in your community.

- If you use a motorized wheelchair or scooter, have an extra battery. A car battery also can be used with a wheelchair but will not last as long as a wheelchair's deep-cycle battery. If available, store a lightweight manual wheelchair for backup.
- If you are Blind or have a visual disability, store a talking or Braille clock or large-print timepiece with extra batteries.
- If you are Deaf or have a hearing loss, consider getting a small portable battery-operated television set. Emergency broadcasts may give information in American Sign Language (ASL) or open captioning.

- **Using a Generator**

If you are considering obtaining a generator, get advice from a licensed professional, such as an electrician. Make sure the generator is listed with Underwriter's Laboratories or a similar organization. Some municipalities, Air Quality Districts, or states have "air quality permit" requirements. A licensed electrician will be able to give you more information on these matters. Always plan to keep the generator outdoors -- never operate it inside, including the basement or garage. Do not hook up a generator directly to your home's wiring. The safest thing to do is to connect the equipment you want to power directly to the outlets on the generator. Connecting a cord from the generator to a point on the permanent wiring system

and backfeeding power to your home is an unsafe method to supply a building during a power outage.

- For more information about using generators safely, see the Generator fact sheet.
- **What Do I Do During A Blackout?**  
Turn off or disconnect any appliances, equipment (like air conditioners) or electronics you were using when the power went out. When power comes back on, it may come back with momentary "surges" or "spikes" that can damage equipment such as computers and motors in appliances like the air conditioner, refrigerator, washer, or furnace.
- Leave one light turned on so you'll know when your power returns.
- Leave the doors of your refrigerator and freezer closed to keep your food as fresh as possible. If you must eat food that was refrigerated or frozen, check it carefully for signs of spoilage. See the Red Cross brochure called, "Help The Power Is Out" for more information.
- Use the phone for emergencies only. Listening to a portable radio can provide the latest information. Do not call 9-1-1 for information -- only call to report a life-threatening emergency.
- Eliminate unnecessary travel, especially by car. Traffic signals will stop working during an outage, creating traffic congestion.
- Remember that equipment such as automated teller machines (ATMs) and elevators may not work during a power outage.
- If it is hot outside, take steps to remain cool. Move to the lowest level of your home, as cool air falls. Wear lightweight, light-colored clothing. Drink plenty of water, even if you do not feel thirsty. If the heat is intense and the power may be off for a long time, consider going to a movie theater, shopping mall, or "cooling shelter" that may be opened in your community. Listen to local radio or television for more information. Get more tips on the preparing for a heat wave.
- Remember to provide plenty of fresh, cool water for your pets.
- If it is cold outside, put on layers of warm clothing. Never burn charcoal for heating or cooking indoors. Never use your oven as a source of heat. If the power may be out for a prolonged period, plan to go to another location (relative, friend, or public facility) that has heat to keep warm.

### **Energy Conservation Recommendations**

- To conserve power to help avoid a blackout, the power industry recommends:
- In heating season, set the furnace thermostat at 68 degrees or lower. In cooling season, set the thermostat at 78 degrees or higher. Consider installing a programmable thermostat that you can set to have the furnace or air conditioning run only when you are at home. Most power is used by heating and cooling, so adjusting the temperatures on your thermostat is the biggest energy conservation measure you can take.
- Turn off lights and computers when not in use. This is especially true about computer monitors - avoid using a "screen saver" and just simply turn the monitor off when you won't be using the computer for a while. Turn the computer off completely each evening. It is no longer true that computer equipment is damaged from turning it off and on.
- Close windows when the heating or cooling system is on.
- Caulk windows and doors to keep air from leaking, and replace old windows with new, energy-efficient windows.

- Clean or replace furnace and air-conditioner filters regularly.
- When buying new appliances be sure to purchase energy-efficient models.
- Wrap the water heater with an insulation jacket, available at most building supplies retailers.
- If you have to wash clothes, wash only full loads and clean the dryer's lint trap after each use.
- When using a dishwasher, wash full loads and use the "light" cycle. If possible, use the "rinse only" cycle and turn off the "high temperature" rinse option. When the regular wash cycle is done, just open the dishwasher door to allow the dishes to air dry.
- Replace incandescent light bulbs with energy-efficient compact fluorescent lights.
- Use one large light bulb rather than several smaller ones.

#### **For More Information**

If you would like more information about rolling blackouts and how to deal with them, contact the power company that serves your area.

## ***Severe Storms***

### **What to Do Before a Thunderstorm**

#### **To prepare for a thunderstorm, you should do the following:**

- Remove dead or rotting trees and branches that could fall and cause injury or damage during a severe thunderstorm.
- Remember the 30/30 lightning safety rule: Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.

#### **The following are guidelines for what you should do if a thunderstorm is likely in your area:**

- Postpone outdoor activities.
- Get inside a home, building, or hard top automobile (not a convertible). Although you may be injured if lightning strikes your car, you are much safer inside a vehicle than outside.
- Remember, rubber-soled shoes and rubber tires provide NO protection from lightning. However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.
- Secure outdoor objects that could blow away or cause damage.
- Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades, or curtains.
- Avoid showering or bathing. Plumbing and bathroom fixtures can conduct electricity.
- Use a corded telephone only for emergencies. Cordless and cellular telephones are safe to use.
- Unplug appliances and other electrical items such as computers and turn off air conditioners. Power surges from lightning can cause serious damage.
- Use your battery-operated NOAA Weather Radio for updates from local officials.

#### **Avoid the following:**

- Natural lightning rods such as a tall, isolated tree in an open area.
- Hilltops, open fields, the beach, or a boat on the water.
- Isolated sheds or other small structures in open areas.

- Anything metal—tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles.

**What to Do During a Thunderstorm**

<b>If you are:</b>	<b>Then:</b>
In a forest	Seek shelter in a low area under a thick growth of small trees.
In an open area	Go to a low place such as a ravine or valley. Be alert for flash floods.
On open water	Get to land and find shelter immediately.
Anywhere you feel your hair stand on end (which indicates that lightning is about to strike)	Squat low to the ground on the balls of your feet. Place your hands over your ears and your head between your knees. Make yourself the smallest target possible and minimize your contact with the ground. DO NOT lie flat on the ground.

***Hurricanes***

**Before a Hurricane**

To prepare for a hurricane, you should take the following measures:

- Make plans to secure your property. Permanent storm shutters offer the best protection for windows. A second option is to board up windows with 5/8” marine plywood, cut to fit and ready to install. Tape does not prevent windows from breaking.
- Install straps or additional clips to securely fasten your roof to the frame structure. This will reduce roof damage.
- Be sure trees and shrubs around your home are well trimmed.
- Clear loose and clogged rain gutters and downspouts.
- Determine how and where to secure your boat.
- Consider building a safe room.

**During a Hurricane**

**If a hurricane is likely in your area, you should:**

- Listen to the radio or TV for information.
- Secure your home, close storm shutters, and secure outdoor objects or bring them indoors.
- Turn off utilities if instructed to do so. Otherwise, turn the refrigerator thermostat to its coldest setting and keep its doors closed.
- Turn off propane tanks. Avoid using the phone, except for serious emergencies.
- Moor your boat if time permits.
- Ensure a supply of water for sanitary purposes such as cleaning and flushing toilets. Fill the bathtub and other large containers with water.

**You should evacuate under the following conditions:**

- If you are directed by local authorities to do so. Be sure to follow their instructions.
- If you live in a mobile home or temporary structure—such shelters are particularly hazardous during hurricanes no matter how well fastened to the ground.

- If you live in a high-rise building—hurricane winds are stronger at higher elevations.
- If you live on the coast, on a floodplain, near a river, or on an inland waterway.
- If you feel you are in danger.

**If you are unable to evacuate, go to your safe room. If you do not have one, follow these guidelines:**

- Stay indoors during the hurricane and away from windows and glass doors.
- Close all interior doors—secure and brace external doors.
- Keep curtains and blinds closed. Do not be fooled if there is a lull; it could be the eye of the storm - winds will pick up again.
- Take refuge in a small interior room, closet, or hallway on the lowest level.
- Lie on the floor under a table or another sturdy object.

### ***Hazard Forecast Updates***

- [National Hurricane Center](#)
- [National Weather Service](#)
- [Storm Prediction Center](#)
- [River Forecast Centers](#)
- [Hydrometeorological Prediction Center](#)
- [Climate Prediction Centers](#)

### **Hurricane Hazards: Winds**

The intensity of a landfalling hurricane is expressed in terms of categories that relate wind speeds and potential damage. According to the [Saffir-Simpson Hurricane Scale](#), a Category 1 hurricane has lighter winds compared to storms in higher categories. A Category 4 hurricane would have winds between 131 and 155 mph and, on the average, would usually be expected to cause 100 times the damage of the Category 1 storm. Depending on circumstances, less intense storms may still be strong enough to produce damage, particularly in areas that have not prepared in advance.

Tropical storm-force winds are dangerous to those caught in them. For this reason, emergency managers plan on having their evacuations complete and their personnel sheltered before the onset of tropical storm winds, not hurricane-force winds.

Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes. Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes. Extensive damage to trees, towers, water and underground utility lines (from uprooted trees), and fallen poles cause considerable disruption.

High-rise buildings are also vulnerable to hurricane-force winds, particularly at the higher levels since wind speed tends to increase with height. Recent research suggests you should stay below the tenth floor, but still above any floors at risk for flooding. It is not uncommon for high-rise buildings to suffer a great deal of damage due to windows being blown out. Consequently, the areas around these buildings can be very dangerous.

The strongest winds usually occur in the right side of the eyewall of the hurricane. Wind speed usually decreases significantly within 12 hours after landfall. Nonetheless, winds can stay above hurricane strength well inland. Hurricane Hugo (1989), for example, battered Charlotte, North Carolina (which is 175 miles inland) with wind gusts to nearly 100 mph.

### ***Additional Resources:***

- [Storm Prediction Center](#)
- [Institute For Business and Home Safety](#)

- [National Hurricane Center, Hurricane Preparedness Web Site](#)
- [Most Intense Storms Recorded](#)

## *Tornadoes:*

### **Tornado Myths:**

**MYTH:** Areas near rivers, lakes, and mountains are safe from tornadoes.

**FACT:** No place is safe from tornadoes. In the late 1980's, a tornado swept through Yellowstone National Park leaving a path of destruction up and down a 10,000 ft. mountain.

**MYTH:** The low pressure with a tornado causes buildings to "explode" as the tornado passes overhead.

**FACT:** Violent winds and debris slamming into buildings cause most structural damage.

**MYTH:** Windows should be opened before a tornado approaches to equalize pressure and minimize damage.

**FACT:** Opening windows allows damaging winds to enter the structure. Leave the windows alone; instead, immediately go to a safe place

## ***STAY INFORMED ABOUT THE STORM***

**by listening to NOAA Weather Radio, commercial radio, and television for the latest tornado WATCHES and WARNINGS.**

When conditions are favorable for severe weather to develop, a severe thunderstorm or tornado **WATCH** is issued. Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado **WARNINGS** for areas where severe weather is imminent. Severe thunderstorm warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities.

## **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 average range is 40 miles, depending on topography. Your 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...

**TORNADO WATCH:** Tornadoes are possible in your area. Remain alert for approaching storms.

**TORNADO WARNING:** A tornado has been sighted or indicated by weather radar. If a tornado warning is issued for your area and the sky becomes threatening, move to your pre-designated place of safety.

**SEVERE THUNDERSTORM WATCH:** Severe thunderstorms are possible in your area.

**SEVERE THUNDERSTORM WARNING:** Severe thunderstorms are occurring.

Remember, tornadoes occasionally develop in areas in which a severe thunderstorm watch or warning is in effect. Remain alert to signs of an approaching tornado and seek shelter if threatening conditions exist.

### *Environmental Clues*

#### **Look out for:**

- Dark, often greenish sky
- Wall cloud
- Large hail
- Loud roar; similar to a freight train

#### **Caution:**

Some tornadoes appear as a visible funnel extending only partially to the ground. Look for signs of debris below the visible funnel.

Some tornadoes are clearly visible while others are obscured by rain or nearby low-hanging clouds.

### *Other Thunderstorm Hazards*

#### **These dangers often accompany thunderstorms:**

- Flash Floods: Number ONE weather killer - 146 deaths annually
- Lightning: Kills 75-100 people each year
- Damaging Straight-line Winds: Can reach 140 mph
- Large Hail: Can reach the size of a grapefruit - causes several hundred million dollars in damage annually to property and crops

Contact your local National Weather Service office, American Red Cross chapter, or Federal Emergency Management Agency office for a copy of the "Thunderstorms and Lightning...The Underrated Killers" brochure (NOAA PA 92053) and the "Flash Floods and Floods...The Awesome Power" brochure (NOAA PA 92050).

### *Tornado Safety*

#### **Before the Storm:**

- Develop a [plan for you and your family](#) for home, work, , [school](#) and when outdoors.
- Have frequent drills.
- Know the county/parish in which you live, and keep a highway map nearby to follow storm movement from weather bulletins.
- Have a [NOAA Weather Radio](#) with a warning alarm tone and battery back-up to receive warnings.
- Listen to radio and television for information.
- If planning a trip outdoors, listen to the latest forecasts and take necessary action if threatening weather is possible.

### **If a Warning is issued or if threatening weather approaches:**

- In a home or building, move to a pre-designated shelter, such as a basement.
- If an underground shelter is not available, move to an interior room or hallway on the lowest floor and get under a sturdy piece of furniture.
- Stay away from windows.
- Get out of automobiles.
- Do not try to outrun a tornado in your car; instead, leave it immediately.
- Mobile homes, even if tied down, offer little protection from tornadoes and should be abandoned.
- Occasionally, tornadoes develop so rapidly that advance warning is not possible. Remain alert for signs of an approaching tornado. Flying debris from tornadoes causes most deaths and injuries.

Each year, many people are killed or seriously injured by tornadoes despite advance warning. Some did not hear the warning while others received the warning but did not believe a tornado would actually affect them. The preparedness information in this brochure, combined with timely severe weather watches and warnings, could save your life in the event a tornado threatens your area. After you have received the warning or observed threatening skies, YOU must make the decision to seek shelter before the storm arrives. It could be the most important decision you will ever make.

### ***Who's Most At Risk?***

- People in automobiles
- The elderly, very young, and the physically or mentally impaired
- People in mobile homes
- People who may not understand the warning due to a language barrier

### ***Tornado Safety in Schools***

#### **EVERY School Should Have A Plan!**

- Develop a severe weather action plan and have frequent drills,
- Each school should be inspected and tornado shelter areas designated by a registered engineer or architect. Basements offer the best protection. Schools without basements should use interior rooms and hallways on the lowest floor and away from windows.
- Those responsible for activating the plan should monitor weather information from NOAA Weather Radio and local radio/television.
- If the school's alarm system relies on electricity, have a compressed air horn or megaphone to activate the alarm in case of power failure.
- Make special provisions for disabled students and those in portable classrooms.
- Make sure someone knows how to turn off electricity and gas in the event the school is damaged.
- Keep children at school beyond regular hours if threatening weather is expected. Children are safer at school than in a bus or car. Students should not be sent home early if severe weather is approaching.
- Lunches or assemblies in large rooms should be delayed if severe weather is anticipated. Gymnasiums, cafeterias, and auditoriums offer no protection from tornado-strength winds.
- Move students quickly into interior rooms or hallways on the lowest floor. Have them assume the tornado protection position (shown at right).

### ***Hospitals, nursing homes, and other institutions should develop a similar plan***

Your National Weather Service, Federal Emergency Management Agency, and American Red Cross educate community officials and the public concerning the dangers posed by tornadoes. YOU can prepare for the possibility of a tornado by learning the safest places to seek shelter when at home, work, school, or outdoors. You should also understand basic weather terms and danger signs related to tornadoes. Your chances of staying safe during a tornado are greater if you have a plan for you and your family, and practice the plan frequently.

## ***Ice Storms***

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians. As ice storms may result in utility failure, it's a good idea to have a Family Disaster Plan.

## ***Floods***

### **Flood: Know Your Terms**

Familiarize yourself with these terms to help identify a flood hazard:

**Flood Watch:** Flooding is possible. Tune in to NOAA Weather Radio, commercial radio, or television for information.

**Flash Flood Watch:** Flash flooding is possible. Be prepared to move to higher ground; listen to NOAA Weather Radio, commercial radio, or television for information.

**Flood Warning:** Flooding is occurring or will occur soon; if advised to evacuate, do so immediately.

**Flash Flood Warning:** A flash flood is occurring; seek higher ground on foot immediately.

### ***Before a Flood***

To prepare for a flood, you should:

- Avoid building in a floodplain unless you elevate and reinforce your home.
- Elevate the furnace, water heater, and electric panel if susceptible to flooding.
- Install "check valves" in sewer traps to prevent flood water from backing up into the drains of your home.
- Construct barriers (levees, beams, floodwalls) to stop floodwater from entering the building.
- Seal walls in basements with waterproofing compounds to avoid seepage.
- The smartest thing you can do to prepare for floods is [purchase flood insurance](#).

### ***During a Flood***

If a flood is likely in your area, you should:

- Listen to the radio or television for information.
- Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.

- Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.
- If you must prepare to evacuate, you should do the following:
- Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.
- Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.
- If you have to leave your home, remember these evacuation tips:
- Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
- Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and the vehicle can be quickly swept away.
- ***Driving Flood Facts***
- The following are important points to remember when driving in flood conditions:
- Six inches of water will reach the bottom of most passenger cars causing loss of control and possible stalling.
- A foot of water will float many vehicles.
- Two feet of rushing water can carry away most vehicles including sport utility vehicles (SUV's) and pick-ups.

### ***After a Flood***

The following are guidelines for the period following a flood:

- Listen for news reports to learn whether the community's water supply is safe to drink.
- Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.
- Avoid moving water.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- Stay away from downed power lines, and report them to the power company.
- Return home only when authorities indicate it is safe.
- Stay out of any building if it is surrounded by floodwaters.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

## Protect Your Home Against Flood Damage

<http://www.ibhs.org/publications/view.asp?cat=75&id=120>

Rain. Tides. Levee failure. Ice jam. Snow melt. Floods happen, and they happen beside rivers, on the coast, in deserts and in city streets. You don't have to lose your home and possessions to rampaging waters, however. It's never too early to prepare and you can take several basic steps right now to protect your family and your home from disaster.

### **First Things First**

1. Check with your city or county building authority, your insurance agent or your mortgage lender to find out if your community participates in the National Flood Insurance Program (NFIP). If your house is in a participating community, you live in a flood zone. Period.
2. Consult the same sources to determine if your home is in a Special Flood Hazard Area, which has at least a one percent chance of being flooded in any given year. Perhaps you live in an "A" zone, generally near a lake, river or stream and subject to rising water. Or you may live in a "V" zone, an area that involves beachfront homes and is susceptible to wind-driven waves as well as rising water.

### **Know Your BFE**

Whether you live near a river or on the ocean's shore, you should know the expected flooding level in your area. The base flood elevation (BFE), in other words. Consult your local building authority for the base flood elevation in your immediate area. Also check building department records or your property survey for the elevation of your home's lowest floor. This is the lowest enclosed area in your home, including any area - your basement, for instance - that is below ground level on all sides. If you are unable to determine the lowest floor elevation, hire a licensed surveyor to do it.

### **If You Live in an "A" ZONE**

If your home is in an "A" zone and the lowest floor is below the base flood elevation, the best way to protect it against flood damage is to elevate your entire house so the lowest floor is at or above the base flood elevation. Keep in mind, you must use design standards that

meet the minimum requirements of your community's local floodplain management building ordinance for new construction and substantially improved structures. You can also take the following measures to avoid flood damage in an "A" zone:

- › Use water-resistant building materials in areas below the base flood elevation.
- › Leave the basement or lower floors unfinished if they're below base flood elevation.
- › Prevent sewer lines from backing up by installing backflow valves or standpipes.
- › Raise your washer and dryer and other equipment such as the water heater, oil tanks, furnace and electrical wiring on concrete blocks, above the base flood elevation level. If you are unable to raise a particular item, consider anchoring it and protecting it with a floodwall or shield.
- › Install flood shields or built-up barriers for basement windows and doors. The tops of shields and barriers should extend above the base flood elevation.
- › Install and maintain a sump pump system if you have below-grade floors.
- › Landscape with native plants and vegetation that resist soil erosion.

### **If You Live in a "V" Zone**

Homes in "V" zones are threatened not only by rising water, but by wave action as well. The answer in this case: relocate your home. If relocating isn't an option, however, elevate your house on piles or piers. Here, too, you must use design standards that meet the minimum requirements of your community's local floodplain management building ordinance for new construction and substantially improved structures. Be sure to have an architect or engineer evaluate your elevation plans.

### **When A Flood Threatens**

You can improve the odds of your home surviving a flood by taking these precautions, but you won't make it flood-proof. Nor do these measures guarantee your safety. Take these additional steps to protect yourself and your family as fully as possible:

- › Become familiar with your community's disaster preparedness plans and create a family plan. Identify escape routes from your home and neighborhood and designate an emergency meeting place for your family to reunite if you become separated. Also establish a contact point to communicate with concerned relatives.

- ) Put together an emergency kit that includes a three-day supply of drinking water and food you don't have to refrigerate or cook; first aid supplies; a portable NOAA weather radio; a wrench and other basic tools; a flashlight; work gloves; emergency cooking equipment; portable lanterns; fresh batteries for each piece of equipment; clothing; blankets; baby items; prescription medications; extra car and house keys; extra eyeglasses; credit cards and cash; important documents, including insurance policies.
- ) If flooding threatens, follow weather and news reports so you know how much danger you're facing. Obey evacuation orders from local authorities. For more information about protecting your home and family from floods, check this source:

National Flood Insurance Program  
Federal Emergency Management Agency  
Federal Insurance Administration  
500 C Street, S.W.  
Washington, D.C. 20472  
1-800-427-4661  
[www.fema.gov/fima/nfip](http://www.fema.gov/fima/nfip)

Remember, homeowners insurance policies do not cover damage caused by floods. The federal government created the National Flood Insurance Program to provide this coverage to property owners. Twenty-five to thirty percent of all flood claims are paid for homes outside of special flood hazard areas, so if your community participates in this federal program, you should purchase flood coverage either directly from the NFIP or from a participating insurer. Contact your insurance agent or company.

## ***Dam Failure***

### ***Ways to Plan Ahead***

- Know your risk. Do you live downstream from a dam? Is the dam a high-hazard or significant-hazard potential dam? To find out, contact your state or county emergency management agency or visit the [National Inventory of Dams \(NID\)](#) or the [Association of State Dam Safety Officials \(ASDSO\)](#).
- Find out who owns the dam and who regulates the dam. This information also should be available from your state or county emergency management agency, [NID](#), or [ASDSO](#).
- Once you determine that you live downstream from a high-hazard or significant-hazard potential dam and find out who owns the dam, see if a current EAP is in place for the dam. An EAP is a formal document that identifies potential

emergency conditions at a dam and specifies preplanned actions to be followed to reduce property damage and loss of life. An EAP specifies actions the dam owner should take to take care of problems at the dam. It also includes steps to assist the dam owner in issuing early warning and notification messages to responsible downstream emergency management authorities of the emergency.

- If there is a dam failure or an imminent dam failure and you need to evacuate, know your evacuation route and get out of harm's way. In general, evacuation planning and implementation are the responsibility of the state and local officials responsible for your safety. However, there may be situations where recreational facilities, campgrounds, or residences are located below a dam and local authorities will not be able to issue a timely warning. In this case, the dam owner should coordinate with local emergency management officials to determine who will warn you and in what priority.

See flood information.

### ***Dam Safety Regulations in New York State:***

In Section 12.1.2 Dam Safety, the guidelines state the following: The applicant will have to demonstrate that cofferdam failure will not adversely impact lives and property. The evaluation will focus on the potential for flooding, loss of life and damage to properties downstream of the cofferdam not owned or otherwise controlled by the applicant. If cofferdam failure could adversely impact properties downstream of the cofferdam, not controlled by the applicant, or if the cofferdam failure could adversely impact lives, then more specific information regarding the geotechnical, structural and hydraulic aspects of the cofferdam design will be required. The determination by the department of the acceptability of the cofferdam design will be made on a case-by-case basis.

The following refers to inspection responsibilities of owners of dams and is from the NYS Environmental Conservation Law, Article 15 Section 0507.

### **§ 15-0507. Structures impounding waters; structures in waters; responsibility of owner; inspection.**

1. Any owner of a dam or other structure which impounds waters shall at all times operate and maintain said structure and all appurtenant structures in a safe condition. As used in this section and section 71-1109 of this chapter, "owner" means any person or local public corporation who owns, erects, reconstructs, repairs, maintains or uses a dam or other structure which impounds waters. The commissioner may promulgate regulations requiring any owner to prepare and implement a safety program for such dam or structure as necessary to safeguard life, property or natural resources. Regulations governing the safety program may include requirements for inspections, monitoring, maintenance and operation, emergency action planning, financial security, recordkeeping and reporting or any other requirement the commissioner deems necessary to safeguard life, property or natural resources. Such requirement shall only apply to those dams or other structures that impound waters which pose, in the event of failure, a threat of personal injury, substantial property damage or substantial natural resource damage.

2. Whenever in the judgment of the department public safety requires, the department shall investigate dams and other structures impounding waters in the state, and docks, piers and wharves extending into such waters.

3. In addition to any other power set forth in this chapter, including the power to issue an order pursuant to section 71-0301 of this chapter, the department shall have the power, whenever in the judgment of the department it may be necessary to safeguard life or property or to protect the natural resources of the state, after hearing on due notice, to issue an order, setting forth the findings of fact and conclusions therefrom, directing any owner:

a. to conduct studies, investigations and analyses necessary to evaluate the safety of the structure, including but not limited to visual inspections, measurements, foundation exploration and testing, materials testing, hydraulic and hydrologic analyses, structural stability analyses and seepage investigations; and

b. to either remove the said structure or to erect, reconstruct or repair the same within such reasonable time and in such manner as shall be specified in said order.

It shall be the duty of every such owner to obey, observe and comply with such order and with the conditions therein prescribed. The provisions of title 9 of this article with respect to administrative procedures shall be applicable to hearings under this section.

4. It shall be unlawful for any owner to fail, omit or neglect to comply with such order within a reasonable time as designated by the department.

5. Upon the violation of any such order, the department shall have power to enter upon the lands and waters where such structures are located for the purpose of removing, repairing or reconstructing the same and to take such other and further precautions which it may deem necessary to safeguard life or property or protect the natural resources of the state against danger occasioned by the presence of such structures. In removing, repairing and reconstructing such structures or other properties so affected the department shall not deviate from the method, manner and specifications contained in the original order.

6. The department shall certify the amount of the costs and expenses incurred by the department and any state departments for the removal, repair or reconstruction aforesaid in any wise connected therewith to the county legislative body of the county or counties in which the said lands and waters are located, whereupon it shall be the duty of such county legislative body of each county to add the amount so certified to the assessment rolls of such locality or localities as a charge against the real property upon which the dam, dock or other structure is located, designated or described by the department as chargeable therewith, and to issue its warrant or warrants for the collection thereof. Thereupon it shall become the duty of such locality or localities through their proper officers to collect the amount so certified in the same manner as other taxes are collected in such locality or localities and when collected to pay the same to the department, who shall thereupon, pay the same into the State Treasury. Any amount so levied shall thereupon become and be a lien upon the real property affected thereby to the same extent as any tax levy becomes and is a lien thereon. The

department may also assert other rights of recovery as may exist by law for such costs and expenses incurred.

## ***Landslides***

### **Before a Landslide or Debris Flow**

Protect yourself from the effects of a landslide or debris flow:

- Do not build near steep slopes, close to mountain edges, near drainage ways, or natural erosion valleys.
- Get a ground assessment of your property.
- Contact local officials, state geological surveys or departments of natural resources, and university departments of geology. Landslides occur where they have before, and in identifiable hazard locations. Ask for information on landslides in your area, specific information on areas vulnerable to landslides, and request a professional referral for a very detailed site analysis of your property, and corrective measures you can take, if necessary.
- If you are at risk from a landslide talk to your insurance agent. Debris flow may be covered by flood insurance policies from the [National Flood Insurance Program \(NFIP\)](#).
- Minimize home hazards:
  - Have flexible pipe fittings installed to avoid gas or water leaks, as flexible fittings are more resistant to breakage (only the gas company or professionals should install gas fittings).
  - Plant ground cover on slopes and build retaining walls.
  - In mudflow areas, build channels or deflection walls to direct the flow around buildings.
  - Remember: If you build walls to divert debris flow and the flow lands on a neighbor's property, you may be liable for damages.

### ***Recognize Landslide Warning Signs***

- Changes occur in your landscape such as patterns of storm-water drainage on slopes (especially the places where runoff water converges) land movement, small slides, flows, or progressively leaning trees.
- Doors or windows stick or jam for the first time.
- New cracks appear in plaster, tile, brick, or foundations.
- Outside walls, walks, or stairs begin pulling away from the building.
- Slowly developing, widening cracks appear on the ground or on paved areas such as streets or driveways.
- Underground utility lines break.
- Bulging ground appears at the base of a slope.
- Water breaks through the ground surface in new locations.
- Fences, retaining walls, utility poles, or trees tilt or move.
- A faint rumbling sound that increases in volume is noticeable as the landslide nears.
- The ground slopes downward in one direction and may begin shifting in that direction under your feet.
- Unusual sounds, such as trees cracking or boulders knocking together, might indicate moving debris.

- Collapsed pavement, mud, fallen rocks, and other indications of possible debris flow can be seen when driving (embankments along roadsides are particularly susceptible to landslides).

### ***During a Landslide or Debris Flow***

#### ***What you should do if a landslide or debris flow occurs:***

- **Stay alert and awake.** Many debris-flow fatalities occur when people are sleeping. Listen to a NOAA Weather Radio or portable, battery-powered radio or television for warnings of intense rainfall. Be aware that intense, short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.
- **If you are in areas susceptible to landslides and debris flows, consider leaving if it is safe to do so.** Remember that driving during an intense storm can be hazardous. If you remain at home, move to a second story if possible. Staying out of the path of a landslide or debris flow saves lives.
- **Listen for any unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together.** A trickle of flowing or falling mud or debris may precede larger landslides. Moving debris can flow quickly and sometimes without warning.
- **If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and for a change from clear to muddy water.** Such changes may indicate landslide activity upstream, so be prepared to move quickly. Don't delay! Save yourself, not your belongings.
- **Be especially alert when driving.** Embankments along roadsides are particularly susceptible to landslides. Watch the road for collapsed pavement, mud, fallen rocks, and other indications of possible debris flows.

### ***What to Do if You Suspect Imminent Landslide Danger***

- **Contact your local fire, police, or public works department.** Local officials are the best persons able to assess potential danger.
- **Inform affected neighbors.** Your neighbors may not be aware of potential hazards. Advising them of a potential threat may help save lives. Help neighbors who may need assistance to evacuate.
- **Evacuate.** Getting out of the path of a landslide or debris flow is your best protection.
- **Curl into a tight ball and protect your head if escape is not possible.**

### ***After a Landslide or Debris Flow***

#### ***Guidelines for the period following a landslide:***

- **Stay away from the slide area.** There may be danger of additional slides.
- **Listen to local radio or television stations** for the latest emergency information.
- **Watch for flooding,** which may occur after a landslide or debris flow. Floods sometimes follow landslides and debris flows because they may both be started by the same event.
- **Check for injured and trapped persons near the slide,** without entering the direct slide area. Direct rescuers to their locations.

- **Help a neighbor who may require special assistance** - infants, elderly people, and people with disabilities. Elderly people and people with disabilities may require additional assistance. People who care for them or who have large families may need additional assistance in emergency situations.
- **Look for and report broken utility lines and damaged roadways and railways to appropriate authorities.** Reporting potential hazards will get the utilities turned off as quickly as possible, preventing further hazard and injury.
- **Check the building foundation, chimney, and surrounding land for damage.** Damage to foundations, chimneys, or surrounding land may help you assess the safety of the area.
- **Replant damaged ground as soon as possible** since erosion caused by loss of ground cover can lead to flash flooding and additional landslides in the near future.
- **Seek advice from a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk.** A professional will be able to advise you of the best ways to prevent or reduce landslide risk, without creating further hazard.

## *Winter Storms*

### **Before Winter Storms and Extreme Cold**

#### *Add the following supplies to your disaster supplies kit:*

- **Rock salt** to melt ice on walkways
- **Sand** to improve traction
- **Snow shovels** and other snow removal equipment.

#### *Prepare your home and family*

- **Prepare for possible isolation in your home** by having sufficient heating fuel; regular fuel sources may be cut off. For example, store a good supply of dry, seasoned wood for your fireplace or wood-burning stove.
- **Winterize your home** to extend the life of your fuel supply by insulating walls and attics, caulking and weather-stripping doors and windows, and installing storm windows or covering windows with plastic.
- **Winterize your house, barn, shed or any other structure that may provide shelter** for your family, neighbors, livestock or equipment. Clear rain gutters; repair roof leaks and cut away tree branches that could fall on a house or other structure during a storm.
- **Insulate pipes** with insulation or newspapers and plastic and allow faucets to drip a little during cold weather to avoid freezing.
- **Keep fire extinguishers on hand**, and make sure everyone in your house knows how to use them. House fires pose an additional risk, as more people turn to alternate heating sources without taking the necessary safety precautions.
- **Learn how to shut off water valves** (in case a pipe bursts).
- **Know ahead of time what you should do to help elderly or disabled friends, neighbors or employees.**
- **Hire a contractor to check the structural ability of the roof** to sustain unusually heavy weight from the accumulation of snow - or water, if drains on flat roofs do not work.

**Prepare your car**

- **Check or have a mechanic check the following items on your car:**
  - **Antifreeze levels** - ensure they are sufficient to avoid freezing.
  - **Battery and ignition system** - should be in top condition and battery terminals should be clean.
  - **Brakes** - check for wear and fluid levels.
  - **Exhaust system** - check for leaks and crimped pipes and repair or replace as necessary. *Carbon monoxide is deadly and usually gives no warning.*
  - **Fuel and air filters** - replace and keep water out of the system by using additives and maintaining a full tank of gas.
  - **Heater and defroster** - ensure they work properly.
  - **Lights and flashing hazard lights** - check for serviceability.
  - **Oil** - check for level and weight. Heavier oils congeal more at low temperatures and do not lubricate as well.
  - **Thermostat** - ensure it works properly.
  - **Windshield wiper equipment** - repair any problems and maintain proper washer fluid level.

**Install good winter tires.** Make sure the tires have adequate tread. All-weather radials are usually adequate for most winter conditions. However, some jurisdictions require that to drive on their roads, vehicles must be equipped with chains or snow tires with studs.

**Maintain at least a half tank of gas** during the winter season.

**Place a winter emergency kit in each car** that includes:

- a shovel
- windshield scraper and small broom
- flashlight
- battery powered radio
- extra batteries
- water
- snack food
- matches
- extra hats, socks and mittens
- First aid kit with pocket knife
- Necessary medications
- blanket(s)
- tow chain or rope
- road salt and sand
- booster cables
- emergency flares
- fluorescent distress flag

**Dress for the Weather**

- **Wear several layers** of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.
- **Wear mittens**, which are warmer than gloves.

- **Wear a hat.**
- **Cover your mouth** with a scarf to protect your lungs.

### **During a Winter Storm**

#### ***Guidelines***

- **Listen to your radio, television, or NOAA Weather Radio** for weather reports and emergency information.
- **Eat regularly and drink ample fluids**, but avoid caffeine and alcohol.
- **Conserve fuel, if necessary**, by keeping your residence cooler than normal. Temporarily close off heat to some rooms.
- **If the pipes freeze**, remove any insulation or layers of newspapers and wrap pipes in rags. Completely open all faucets and pour hot water over the pipes, starting where they were most exposed to the cold (or where the cold was most likely to penetrate).
- **Maintain ventilation when using kerosene heaters** to avoid build-up of toxic fumes. Refuel kerosene heaters outside and keep them at least three feet from flammable objects.

#### ***If you are outdoors***

- **Avoid overexertion when shoveling snow.** Overexertion can bring on a heart attack—a major cause of death in the winter. If you must shovel snow, stretch before going outside.
- **Cover your mouth.** Protect your lungs from extremely cold air by covering your mouth when outdoors. Try not to speak unless absolutely necessary.
- **Keep dry.** Change wet clothing frequently to prevent a loss of body heat. Wet clothing loses all of its insulating value and transmits heat rapidly.
- **Watch for signs of frostbite.** These include loss of feeling and white or pale appearance in extremities such as fingers, toes, ear lobes, and the tip of the nose. If symptoms are detected, get medical help immediately.
- **Watch for signs of hypothermia.** These include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion.
- **If symptoms of hypothermia are detected:**
  - get the victim to a warm location
  - remove wet clothing
  - put the person in dry clothing and wrap their entire body in a blanket
  - warm the center of the body first
  - give warm, non-alcoholic or non-caffeinated beverages if the victim is conscious
  - get medical help as soon as possible.

#### ***If you are driving***

- **Drive only if it is absolutely necessary. If you must drive, consider the following:**
  - Travel in the day, don't travel alone, and keep others informed of your schedule.
  - Stay on main roads; avoid back road shortcuts.
- **If a blizzard traps you in the car:**
  - **Pull off the highway.** Turn on hazard lights and hang a distress flag from the radio antenna or window.
  - **Remain in your vehicle where rescuers are most likely to find you.** Do not set out on foot unless you can see a building close by where you know you can take shelter. Be careful; distances are distorted by blowing snow. A building may seem close, but be too far to walk to in deep snow.
  - **Run the engine and heater about 10 minutes each hour to keep warm.** When the engine is running, open a downwind window slightly for ventilation and

periodically clear snow from the exhaust pipe. *This will protect you from possible carbon monoxide poisoning.*

- **Exercise to maintain body heat, but avoid overexertion.** In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coat for a blanket.
- **Take turns sleeping.** One person should be awake at all times to look for rescue crews.
- **Drink fluids to avoid dehydration.**
- **Be careful not to waste battery power.** Balance electrical energy needs - the use of lights, heat, and radio - with supply.
- **Turn on the inside light at night** so work crews or rescuers can see you.
- **If stranded in a remote area,** stomp large block letters in an open area spelling out HELP or SOS and line with rocks or tree limbs to attract the attention of rescue personnel who may be surveying the area by airplane.
- **Leave the car and proceed on foot - if necessary** - once the blizzard passes.

## ***Extreme Temperatures***

### **During a Heat Emergency**

What you should do if the weather is extremely hot:

- Stay indoors as much as possible and limit exposure to the sun.
- Stay on the lowest floor out of the sunshine if air conditioning is not available.
- Consider spending the warmest part of the day in public buildings such as libraries, schools, movie theaters, shopping malls, and other community facilities. Circulating air can cool the body by increasing the perspiration rate of evaporation.
- Eat well-balanced, light, and regular meals. Avoid using salt tablets unless directed to do so by a physician.
- Drink plenty of water. Persons who have epilepsy or heart, kidney, or liver disease; are on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.
- Limit intake of alcoholic beverages.
- Dress in loose-fitting, lightweight, and light-colored clothes that cover as much skin as possible.
- Protect face and head by wearing a wide-brimmed hat.
- Check on family, friends, and neighbors who do not have air conditioning and who spend much of their time alone.
- Never leave children or pets alone in closed vehicles.
- Avoid strenuous work during the warmest part of the day. Use a buddy system when working in extreme heat, and take frequent breaks.

### ***Additional Information***

An emergency water shortage can be caused by prolonged drought, poor water supply management, or contamination of a surface water supply source or aquifer.

Drought can affect vast territorial regions and large population numbers. Drought also creates environmental conditions that increase the risk of other hazards such as fire, flash flood, and possible landslides and debris flow.

Conserving water means more water available for critical needs for everyone. Appendix A contains detailed suggestions for conserving water both indoors and outdoors. Make these practices a part of your daily life and help preserve this essential resource.

### ***Before Extreme Heat***

To prepare for extreme heat, you should:

- Install window air conditioners snugly; insulate if necessary.
- Check air-conditioning ducts for proper insulation.
- Install temporary window reflectors (for use between windows and drapes), such as aluminum foil-covered cardboard, to reflect heat back outside.
- Weather-strip doors and sills to keep cool air in.
- Cover windows that receive morning or afternoon sun with drapes, shades, awnings, or louvers. (Outdoor awnings or louvers can reduce the heat that enters a home by up to 80 percent.)
- Keep storm windows up all year.

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## *Freezing Weather*

### **Protect Your Home Against Damage from Freezing Weather**

**<http://www.ibhs.org/publications/view.asp?cat=76&id=121>**

As if slippery sidewalks and snow-covered cars aren't bad enough during the winter, you face another potential headache: ruined carpets and water damage to your ceilings and walls from leaks caused by ice dams or bursting pipes. You can avoid the resulting aggravation and expense by taking several basic steps right now to prevent this kind of damage.

#### **First Things First**

If you're handy with a hammer and screwdriver, you can do much of the work yourself. Work involving your home's structure may require a building contractor, however, or even a registered design professional such as an architect or engineer.

Before making any structural changes to your home, check with your local building officials to be sure what you're doing complies with local building codes.

#### **Ice Dams**

An ice dam is an accumulation of ice at the lower edge of a sloped roof, usually at the gutter. When interior heat melts the snow on the roof, the water will run down and refreeze at the roof's edge, where temperatures are much cooler. Eventually, the ice builds up and blocks water from draining off of the roof. This, in turn, forces the water under the roof covering and into your attic or down the inside walls of your house. Once an ice dam forms, the potential damage can be serious. Take these steps now to avoid trouble later:

- › Keep the attic well ventilated. The colder the attic, the less melting and refreezing on the roof.
- › Keep the attic floor well insulated to minimize the amount of heat rising through the attic from within the house.

This two-step approach decreases the likelihood that ice dams will form or, at least, reduces their size. As an extra precaution against roof leaks in case ice dams do form, install a water-repellent membrane under your roof covering. Talk with your local building official about minimum code requirements for ice dam protection.

Unfortunately, ice dams may be unavoidable if your home has recessed lighting near the roof. Heat generated from these lights melts snow, which then contributes to ice dam buildup. The only sure way to avoid this problem is to eliminate recessed light fixtures near the roof.

## **Freezing Pipes**

Frozen water in pipes can cause water pressure buildup between the ice blockage and the closed faucet at the end of a pipe, which leads to pipes bursting at their weakest point. Pipes in attics, crawl spaces and outside walls are particularly vulnerable to freezing in extremely cold weather, where holes in your house's outside wall for television, cable or telephone lines allow cold air to reach them.

To keep water in pipes from freezing, take the following steps:

- › Fit exposed pipes with insulation sleeves or wrapping to slow the heat transfer. The more insulation the better.
- › Seal cracks and holes in outside walls and foundations near water pipes with caulking.
- › Keep cabinet doors open during cold spells to allow warm air to circulate around pipes (particularly in the kitchen and bathroom).
- › Keep a slow trickle of water flowing through faucets connected to pipes that run through an unheated or unprotected space. Or drain the water system, especially if your house will be unattended during cold periods.

For more information about protecting your home from damage in freezing weather, check these other publications from the Institute for Business & Home Safety: "Natural hazard mitigation insights: Ice Dams" and "Natural hazard mitigation insights: Freezing and Bursting Pipes."

Review your homeowners insurance policy periodically with your insurance agent or company representative to make sure you have sufficient coverage to protect the investment you've made in your home. Report any property damage to your insurance agent or company representative immediately and make temporary repairs to prevent further damage.

For information about filing an insurance claim after an ice dam or bursting pipes have caused damage to your home, contact your insurance agent or insurance company.

Insurance Information Institute  
110 William Street  
New York, NY 20038  
Phone: 1-800-942-4242  
Fax: (212) 346-5500  
<http://www.iii.org>

## ***Drought***

### ***Drought from an agricultural perspective (J. Miller, CCE of Oneida County)***

Risk management:

- Planting a mix of crops
- perennial vs annual
- planted at different times of the year, spring vs fall
- different critical periods of growth ie cool season grasses have majority of yield in the spring pod set in August is most critical time period for soybeans

- crop selection (drought tolerance) so dont plant all grass hay.....alfalfa has deep tap root system that makes it much more drought tolerant. Of the grasses reed canary grass is much more tolerant of drought conditions than other cool season grasses
- Plant acreages a percentage above your needs
- Have storage capacities for crops a percentage above your needs so that you can store excess crops produced in above average years that can serve as a buffer in less than average years
- Cash reserve to purchase feeds when needed
- Market for livestock if feed reserves cant support livestock numbers
- Develop water resources (alternatives) that will support livestock in drought situations

### Indoor Use

#### General

- Never pour water down the drain when there may be another use for it. Use it to water your indoor plants or garden.
- Make sure your home is leak-free. When you are certain that no water is being used in your home, take a reading of the water meter. Wait 30 minutes and then take a second reading. If the meter reading changes, you have a leak!
- Repair dripping faucets by replacing washers. One drop per second wastes 2,700 gallons of water per year!

#### Bathroom

- Check for toilet leaks by adding food coloring to the tank. If you have a leak, the color will appear in the bowl within 30 minutes. (Flush immediately to avoid stains.)
- If the toilet handle frequently sticks in the flush position letting water run constantly, replace or adjust it.
- Leaky toilets usually can be fixed inexpensively by replacing the flapper.
- Install a toilet displacement device to cut down on the amount of water needed for each flush. (Contrary to popular opinion a brick should not be used because it can dissolve and the loose pieces can cause damage to the internal parts. Instead, place a one-gallon plastic jug of water into the tank to displace toilet flow or purchase a device available at most hardware and home centers designed for this purpose.) Be sure installation does not interfere with the operating parts.
- Consider purchasing a low-volume toilet that uses less than half the water of older models. NOTE: In many areas, low-volume units are required by law.
- Take shorter showers.
- Replace your showerhead with an ultra-low-flow version.
- Place a bucket in the shower to catch excess water for watering plants.
- In the shower, turn the water on to get wet; turn off to lather up; then turn the water back on to rinse. Repeat when washing your hair.
- Don't let the water run while brushing your teeth, washing your face or shaving.
- Avoid flushing the toilet unnecessarily. Dispose of tissues, insects, and other similar waste in the trash rather than the toilet.

#### Kitchen

- Operate automatic dishwashers only when they are fully loaded. Use the "light wash" feature if available to use less water.

- When hand washing dishes, save water by filling two containers - one with soapy water and the other with rinse water containing a small amount of chlorine bleach.
- Most dishwashers can clean soiled dishes very well, so dishes do not have to be rinsed before washing. Just remove large particles of food, and put the soiled dishes in the dishwasher.
- Store drinking water in the refrigerator. Don't let the tap run while you are waiting for water to cool.
- Do not use running water to thaw meat or other frozen foods. Defrost food overnight in the
- Do not waste water waiting for it to get hot. Capture it for other uses such as plant watering or heat it on the stove or in a microwave.
- Clean vegetables in a pan filled with water rather than running water from the tap. Re-use the water that vegetables are washed in for cleaning or watering plants.
- Kitchen sink disposals require lots of water to operate properly. Start a compost pile as an alternate method of disposing of food waste, or simply dispose of food in the garbage.

### **Laundry**

- Operate automatic clothes washers only when they are fully loaded or set the water level for the size of your load.

### **Long Term Indoor Water Conservation**

- Retrofit all household faucets by installing aerators with flow restrictors.
- Consider installing an instant hot water heater on your sink
- Insulate your water pipes to reduce heat loss and prevent them from breaking if you have a sudden and unexpected spell of freezing weather.
- If you are considering installing a new heat pump or air-conditioning system, the new air-to-air models are just as efficient as the water-to-air type and do not waste water.
- Install a water-softening systems only when the minerals in the water would damage your pipes. Turn the softener off while on vacation.
- When purchasing a new appliance, choose one that is more energy and water efficient.

### **Outdoor Use**

#### **General**

- If you have a well at home, check your pump periodically. If the pump turns on and off while water is not being used, you have a leak.

#### **Car Washing**

- Use a shut-off nozzle on your hose that can be adjusted down to a fine spray, so that water flows only as needed. When finished, turn it off at the faucet instead of at the nozzle to avoid leaks. Check hose connectors to make sure plastic or rubber washers are in place to prevent leaks.
- Consider using a commercial car wash that recycles water. If you wash your own car, park on the grass so that you will be watering it at the same time.

#### **Lawn Care**

- Don't overwater your lawn. Lawns only need to be watered every five to seven days in the summer, and every 10 to 14 days in the winter. A heavy rain eliminates the need for watering for up to two weeks. Most of the year, lawns only need one inch of water per week. Buy a rain gauge so that you can better determine when to water.

- Water in several short sessions rather than one long one in order for your lawn to better absorb moisture. For example, water in ten-minute sessions spaced 30 minutes apart, rather than one straight 30-minute session.
- Water lawns during the designated hours.
- Position sprinklers so water lands on the lawn and shrubs and not on paved areas.
- Avoid sprinklers that spray a fine mist; most of the mist evaporates before it reaches the lawn. Check sprinkler systems and timing devices regularly to be sure they operate properly. Florida law now requires that "anyone who purchases and installs an automatic lawn sprinkler system MUST install a rain sensor device or switch which will override the irrigation cycle when adequate rainfall has occurred."
- Raise the lawn mower blade to at least three inches, or to its highest level. A higher cut encourages grass roots to grow deeper, shades the root system, and holds soil moisture.
- Avoid over fertilizing your lawn. Applying fertilizer increases the need for water. Apply fertilizers that contain slow-release, water-insoluble forms of nitrogen.
- Use a broom or blower instead of a hose to clean leaves and other debris from your driveway or sidewalk.
- Do not leave sprinklers or hoses unattended. A garden hose can pour out 600 gallons or more in only a few hours. Use a bell timer to remind yourself to turn sprinklers off.

#### **Pool**

- If you have a swimming pool, consider installing a new water-saving pool filter. A single backflushing with a traditional filter uses 180 to 250 gallons of water.
- Cover pools and spas to reduce evaporation of water.

#### **Long Term Outdoor Conservation**

- Plant it smart. Plant native and/or drought-tolerant grasses, ground covers, shrubs and trees. Once established, they do not need water as frequently and usually will survive a dry period without watering. They also require less fertilizer or herbicides. Landscape with plants that are heat and drought tolerant and that do not require much water to live. Small plants require less water to become established. Group plants together based on similar water needs.
- Install irrigation devices that are the most water efficient for each use. Micro and drip irrigation and soaker hoses are examples of efficient devices.
- Use mulch to retain moisture in the soil. (Help preserve native cypress forests by selecting other types of mulch such as treated melaleuca.) Mulch also helps control weeds that compete with landscape plants for water.
- Avoid purchasing recreational water toys that require a constant stream of water.
- Avoid installing ornamental water features (such as fountains) unless they use recycled water.

#### **Within the Community**

- Participate in public water conservation meetings conducted by your local government, utility or water management district.
- Follow water conservation and water shortage rules in effect. You are included in the restrictions even if your water comes from a private well.
- Encourage your employer to promote water conservation in the workplace.

- Patronize businesses that practice water conservation, such as restaurants that only serve water upon request.
- Report water losses (broken pipes, open hydrants, errant sprinklers, abandoned free-flowing wells, etc.) to the property owner, local authorities or your water management district.
- Encourage your school system and local government to help develop and promote a water conservation ethic.
- Support projects that will lead to an increased use of reclaimed wastewater for irrigation and other uses.
- Support efforts that create a concern for water conservation among tourists.
- Promote water conservation in community newsletters, on bulletin boards, and by example. Encourage your friends, neighbors, and co-workers to "be water smart."
- Conserve water because it is the right thing to do - even when someone else is footing the bill, such as when you are staying at a hotel.
- Try to do one thing each day that will result in saving water. Every drop counts!

### **Water Restrictions**

In some communities where drought conditions exist, officials may recommend measures to restrict use of water. These recommendations may include such procedures as watering lawns and washing cars on odd or even days of the week, at night, or on weekends. The restrictions may limit hours or prohibit use of water, or require use of hand watering instead of using sprinkler systems that use much more water. You should check with your local authorities or water utility for information on water restrictions that may be imposed for your area.

### **More Information**

Please contact your local water authority or utility district, or your local emergency management agency for information specific to your area.

## ***Wildfire***

### **Practice Wildfire Safety**

- People start most wildfires...find out how you can promote and practice wildfire safety.
- Contact your local fire department, health department, or forestry office for information on fire laws. Make sure that fire vehicles can get to your home. Clearly mark all driveway entrances and display your name and address.
- Report hazardous conditions that could cause a wildfire.
- Teach children about fire safety. Keep matches out of their reach.
- Post fire emergency telephone numbers.
- Plan several escape routes away from your home by car and by foot.
- Talk to your neighbors about wildfire safety. Plan how the neighborhood could work together after a wildfire. Make a list of your neighbors' skills, such as medical or technical. Consider how you could help neighbors who have special needs, such as elderly or disabled persons. Make plans to take care of children who may be on their own if parents can't get home.

### **Protect Your Home**

- Regularly clean roof and gutters.
- Inspect chimneys at least twice a year. Clean them at least once a year. Keep the dampers in good working order. Equip chimneys and stovepipes with a spark arrester that meets the requirements of National Fire Protection Association Code 211. (Contact your local fire department for exact specifications.)
- Use 1/2-inch mesh screen beneath porches, decks, floor areas, and the home itself. Also, screen openings to floors, roof, and attic.
- Install a smoke detector on each level of your home, especially near bedrooms; test monthly and change the batteries at least once each year.
- Teach each family member how to use the fire extinguisher (ABC type) and show them where it's kept.
- Keep a ladder that will reach the roof.
- Consider installing protective shutters or heavy fire-resistant drapes.
- Keep handy household items that can be used as fire tools: a rake, axe, handsaw or chainsaw, bucket, and shovel.

#### **Before Wildfire Threatens**

- Design and landscape your home with wildfire safety in mind.
- Select materials and plants that can help contain fire rather than fuel it.
- Use fire resistant or non-combustible materials on the roof and exterior structure of the dwelling. Or treat wood or combustible material used in roofs, siding, decking, or trim with UL-approved fire-retardant chemicals.
- Plant fire-resistant shrubs and trees. For example, hardwood trees are less flammable than pine, evergreen, eucalyptus or fir trees.

#### **Create a 30- to 100-Foot Safety Zone Around Your Home.**

- Within this area, you can take steps to reduce potential exposure to flames and radiant heat. Homes built in pine forests should have a minimum safety zone of 100 feet. If your home sits on a steep slope, standard protective measures may not suffice. Contact your local fire department or forestry office for additional information.
- Rake leaves, dead limbs, and twigs. Clear all flammable vegetation.
- Remove leaves and rubbish from under structures and dispose of them properly.
- Thin a 15-foot space between tree crowns, and remove limbs within 15 feet of the ground.
- Remove dead branches that extend over the roof.
- Prune tree branches and shrubs within 15 feet of a stovepipe or chimney outlet.
- Ask the power company to clear branches from powerlines.
- Remove vines from the walls of the home.
- Mow grass regularly.
- Clear a 10-foot area around propane tanks and the barbecue. Place a screen over the grill-use non-flammable material with mesh no coarser than one-quarter inch.
- Regularly dispose of newspapers and rubbish at an approved site. Follow local burning regulations.
- Place stove, fireplace, and grill ashes in a metal bucket, soak in water for two days, then bury the cold ashes in mineral soil.

- Store gasoline, oily rags, and other flammable materials in approved safety cans. Place cans in a safe location away from the base of buildings.
- Stack firewood at least 100 feet away and uphill from your home. Clear combustible material within 20 feet. Use only UL-approved woodburning devices.

#### **Plan Your Water Needs**

- Identify and maintain an adequate outside water source such as a small pond, cistern, well, swimming pool, or hydrant.
- Have a garden hose that is long enough to reach any area of the home and other structures on the property.
- Install freeze-proof exterior water outlets on at least two sides of the home and near other structures on the property. Install additional outlets at least 50 feet from the home.
- Consider obtaining a portable gasoline-powered pump in case electrical power is cut off.

#### **When Wildfire Threatens**

- If you are warned that a wildfire is threatening your area, listen to your battery-operated radio for reports and evacuation information. Follow the instructions of local officials.
- Confine pets to one room. Make plans to care for your pets in case you must evacuate.
- Arrange temporary housing at a friend or relative's home outside the threatened area.

#### **If Advised to Evacuate, Do So Immediately**

- Wear protective clothing--sturdy shoes, cotton or woolen clothing, long pants, a long-sleeved shirt, gloves, and a handkerchief to protect your face.
- Take your [\*Disaster Supplies Kit\*](#).
- Lock your home.
- Tell someone when you left and where you are going.
- Choose a route away from fire hazards. Watch for changes in the speed and direction of fire and smoke.

#### **If You're sure You Have Time, Take Steps to Protect Your Home**

##### **Inside:**

- Close windows, vents, doors, venetian blinds or non-combustible window coverings, and heavy drapes. Remove lightweight curtains.
- Shut off gas at the meter. Turn off pilot lights.
- Open fireplace damper. Close fireplace screens.
- Move flammable furniture into the center of the home away from windows and sliding-glass doors.
- Turn on a light in each room to increase the visibility of your home in heavy smoke.

##### **Outside:**

- Seal attic and ground vents with pre-cut plywood or commercial seals.
- Turn off propane tanks.
- Place combustible patio furniture inside.
- Connect the garden hose to outside taps.
- Set up the portable gasoline-powered pump.
- Place lawn sprinklers on the roof and near above-ground fuel tanks. Wet the roof.
- Wet or remove shrubs within 15 feet of the home.
- Gather fire tools.

## **Emergency Supplies**

When wildfire threatens, you won't have time to shop or search for supplies. Assemble a [\*Disaster Supplies Kit\*](#) with items you may need if advised to evacuate. Store these supplies in sturdy, easy-to-carry containers such as backpacks, duffelbags, or trash containers.

### **Include:**

- A three-day supply of water (one gallon per person per day) and food that won't spoil.
- One change of clothing and footwear per person and one blanket or sleeping bag per person.
- A first aid kit that includes your family's prescription medications.
- Emergency tools including a battery-powered radio, flashlight, and plenty of extra batteries.
- An extra set of car keys and a credit card, cash, or traveler's checks.
- Sanitation supplies.
- Special items for infant, elderly or disabled family members.
- An extra pair of eyeglasses.
- Keep important family documents in a waterproof container. Assemble a smaller version of your kit to keep in the trunk of your car.

## **Create a Family Disaster Plan**

Wildfire and other types of disasters--hurricane, flood, tornado, earthquake, hazardous materials spill, winter storm--can strike quickly and without warning. You can cope with disaster by preparing in advance and working together. Meet with your family to create a disaster plan. To get started. . .

### **Contact your local Red Cross chapter**

- Find out about the hazards in your community.
- Ask how you would be warned.
- Find out how to prepare for each type of disaster.

### **Meet With Your Family**

- Discuss the types of disasters that could occur.
- Explain how to prepare and respond to each type of disaster.
- Discuss where to go and what to bring if advised to evacuate.
- Practice what you have discussed.

### **Plan How Your Family Will Stay in Contact if Separated by Disaster**

- Pick two meeting places:
  1. A place a safe distance from your home in case of a home fire.
  2. A place outside your neighborhood in case you can't return home.
- Choose an out-of-state friend as a "check-in contact" for everyone to call.

### **Complete These Steps**

- Post emergency telephone numbers by every phone.
- Show responsible family members how and when to shut off water, gas, and electricity at main switches.
- Contact your local fire department to learn about home fire hazards.
- Learn first aid and CPR. Contact your local American Red Cross chapter for information and training.

**Your Local Red Cross Chapter Can Provide Additional Materials in English and Spanish:**

- ["Are You Ready for a Fire?"](#) (ARC 4456)
- "Fire Safety Pictorial Brochure" (ARC 5036) designed for people of low literacy. Contains few words, and those are in both English and Spanish.
- "Safe Living in Your Manufactured Home" (ARC 4465) gives fire, flood, and tornado safety information for people who live in manufactured (mobile) homes.
- ["Your Family Disaster Plan"](#) (ARC 4466)
- ["Your Family Disaster Supplies Kit"](#) (ARC 4463)

#### **Materials for Children:**

- *Fire Prevention Week Campaign Kit* (ARC 5016)  
Contains ideas, stories, sample news releases, camera-ready artwork, and information for use during Fire Prevention Week, and, since most of the information in the kit is undated, throughout the year.
- "Be Ready 1-2-3" features a children's workbook (ARC 5017), Instructor's Manual (ARC 5018), "How-To" Guide (ARC 5019), and "completion certificate" (C-814) that involve puppets who give important safety information to children ages 3-8 about residential fire safety, winter storms, and earthquakes.
- "Fire Safety Activity Poster" (ARC 5034) is an 18" x 24" poster designed for children ages 4-8 on one side, and 8-12 on the other. Contains a maze, puzzle, word find, and coloring pages. In English and Spanish.
- ["Disaster Preparedness Coloring Book"](#) (PDF File) (ARC 2200, English, or ARC 2200S, Spanish) for children ages 3-10.
- "Adventures of the Disaster Dudes" (ARC 5024) video and Presenter's Guide for use by an adult with children in grades 4-6.

#### ***Epidemics:***

The New York State Department of Health and the Oneida County Department of Health are among the primary responders during an epidemic. The following is a list of Frequently Asked Questions for Eastern Equine Encephalitis, Avian Influenza, West Nile Disease, Chronic Wasting Disease and Lyme Disease.

#### ***Eastern Equine Encephalitis***

##### ***What is Eastern equine encephalitis?***

Eastern equine encephalitis (EEE) is a rare but serious viral disease spread by mosquitoes that can affect people and horses. EEE can also cause disease in captive birds such as the ring-necked pheasant, emu, quail and ducks.

##### ***How common is Eastern equine encephalitis in people?***

EEE is very rare. According to the Centers for Disease Control and Prevention there have been 221 confirmed human cases in the United States from 1964 to 2004. Most states east of the Mississippi River have had documented human cases of EEE. Many of these cases have occurred in east coast states with large freshwater swamps. The four states with the highest number of human cases are Florida, Massachusetts, New Jersey and Georgia. Two human cases have been reported in New York State, one in 1971 and the other in 1983. Both were fatal. The risk of getting EEE is highest from late July through September.

**How is Eastern equine encephalitis transmitted?**

EEE is transmitted by the bite of an infected mosquito. Mosquitoes become infected by feeding on infected birds. Infected mosquitoes will then occasionally feed on horses, humans and other mammals. Several species of mosquitoes can become infected with the EEE virus. The virus that causes EEE is spread only by mosquitoes. People and horses do not directly spread the disease to horses or people.

**Who is at risk of becoming infected with Eastern equine encephalitis?**

People of all ages are at risk for infection with the EEE virus but individuals over age 50, and younger than age 15, are at greatest risk for developing severe disease.

**What are the symptoms of Eastern equine encephalitis?**

Infection with EEE can cause a range of illnesses. Some people bitten by an infected mosquito will not develop any symptoms; others get only a mild flu-like illness with fever, headache, and fatigue. In rare cases, infection of the central nervous system occurs, causing sudden fever, muscle pains and a headache of increasing severity, often followed quickly by seizures and coma. Inflammation and swelling of the brain, called encephalitis, is the most dangerous complication. The case fatality rate for EEE (the percentage of people who develop the disease who will die) is between 30 – 70%. It is estimated that 35% of the people who survive EEE will have mild to severe disabilities.

**When do symptoms appear?**

The incubation period (the amount of time before symptoms appear) is between 5-15 days after the bite of an infected mosquito.

**What is the treatment for Eastern equine encephalitis?**

There is no specific treatment for EEE. Treatment focuses on supportive therapy to lower fever and ease the pressure on the brain and spinal cord.

**Do all mosquitoes transmit disease?**

No. Most mosquitoes do not transmit disease. There are about 60 different species of mosquitoes in New York State, but only a few species are capable of transmitting the EEE virus.

**What can be done to prevent Eastern equine encephalitis?**

There is no human vaccine for EEE. The best way to protect yourself is to keep mosquitoes from biting you.

- [Information of how to reduce your chances from being bitten by mosquitoes.](#)

Follow these steps every summer to reduce your risk of being bitten by mosquitoes, particularly if you live near natural wetlands. These steps will also reduce your chance of being bitten by mosquitoes that may carry other viruses such as the West Nile virus.

**What can be done to protect horses from Eastern equine encephalitis?**

There are EEE and West Nile virus vaccines available for horses. In consultation with a veterinarian, please ensure that you vaccinate your horse(s) against these viruses. Also be sure that water in water troughs is changed at least twice a week to discourage mosquito breeding.

**What is being done to control mosquitoes?**

The New York State Department of Health, along with other state agencies, local health departments, colleges and environmental groups, has prepared a plan to address issues related to West Nile virus and other mosquito-borne disease in the New York State and has devised a preventive strategy to minimize the impact. Local communities are implementing various control

measures based on geographic location and level of risk. Specific information of the West Nile Virus Response Plans is [available on the Department's Web site](#).

## ***Avian Influenza (Bird Flu)***

### ***What is avian influenza (bird flu)?***

Avian influenza, also called bird flu, is a disease of birds, usually wild ducks and geese. Sometimes, this disease can also spread from wild birds into domestic poultry. Although bird flu viruses are from the same group as human flu viruses, each virus generally affects either birds or people, not both.

### ***What is seasonal human flu?***

Seasonal flu is a contagious respiratory illness caused by human influenza viruses. It can cause mild to severe illness, and at times can lead to death. Human flu viruses change a little bit every year which is why people can get sick from the flu more than once. It is also why a new flu vaccine is produced each year because the vaccine must be made to protect against a specific virus.

### ***What is a pandemic?***

Rarely, the influenza virus undergoes a major change that results in a completely new virus. If the new virus causes serious human illness and spreads easily from person to person worldwide, it is called a pandemic.

### ***Is H5N1 the same as bird flu?***

Yes, one strain of severe bird flu, called H5N1, has been circulating in Asia for several years and has recently spread to Europe.

### ***Why is bird flu getting so much attention right now?***

The H5N1 virus in Asia has caused more concern than other bird flu viruses because:

- There have been an unusually high number of human cases;
- A few cases of possible person to person spread have been reported;
- The disease has continued to occur despite control efforts, and has spread to other regions;
- The disease has caused illness and death in wild birds, but it also appears that even wild birds who are not sick are actually infected and are spreading disease;
- The disease has been transmitted from birds to non-human mammals;
- Genetic studies confirm that the virus is continuing to change so that it still has the possibility to evolve into a virus that can spread easily from person to person.

The H5N1 bird flu virus is *not* currently causing an influenza pandemic. However, these characteristics have raised concerns about the potential for a human pandemic.

### ***How are people getting sick from the H5N1 strain of bird flu?***

The H5N1 virus is found in the saliva, nasal discharge and feces of infected birds. In countries where this disease is found, families frequently raise birds for their own meals, and ducks and chickens often roam freely and contaminate the neighborhood. Human infections have occurred as a result of these heavily contaminated living areas, and from slaughtering and preparing the birds for food. Luckily, this disease is not easily spread between people. If it starts spreading person to person more readily, the way human flu viruses do, it could become much more dangerous.

***How is the H5N1 strain of bird flu spreading from place to place?***

Healthy birds become infected from direct contact with sick birds, or contact with areas or objects contaminated by sick birds. Much of the spread in Asia is probably a result of movement of live birds to markets. Wild birds may also have the virus but do not always get sick. If they are infected but not sick, they might be able to spread the virus to new areas when they migrate.

***Do we have avian influenza in New York State?***

Mild strains of avian influenza are found in wild birds and sometimes in domestic poultry in the United States. The [NYS Department of Agriculture and Markets \(NYSDAM\)](#), performs routine monitoring for avian influenza in live poultry markets and commercial and backyard poultry farms. When any avian influenza virus is found in poultry, the NYSDAM takes action to eliminate the virus.

The H5N1 strain of bird flu in Asia and eastern Europe *has never* been found in New York or anywhere else in the Western Hemisphere.

***What is the risk of the H5N1 strain of bird flu arriving in New York State?***

The risk of H5N1 bird flu arriving in New York is reduced by federal laws restricting bird imports and by NYSDAM surveillance and control procedures. It is illegal to import poultry or poultry products from countries that are affected by this disease. Smuggling birds or bird products into the country does pose some threat and infected travelers from affected countries might accidentally introduce the virus into the United States. There may also be some risk from migrating wild birds.

***What can I do to protect myself and my family from bird flu viruses?***

The H5N1 virus does not currently pose a risk to people living in the United States. Unless this virus changes so that it spreads easily from person to person, it is not likely to become a significant threat to people living in the U.S. If the H5N1 virus ever gets into the U.S., any necessary precautions will be publicized by the appropriate authorities.

There are general precautions that can be taken to reduce the chance of getting sick from any disease carried by animals:

- Wash hands after contact with animals;
- Avoid contact with animals that appear to be sick, including birds;
- Thoroughly cook eggs and meat prior to eating, and wash all utensils and preparation areas thoroughly with soap and hot water;
- Wash hands frequently when preparing food;
- Owners of domestic livestock, including poultry and waterfowl, should contact their local veterinarian if any of their animals appear sick;
- Hunters should hunt and process only healthy-appearing animals and should wear gloves when handling any animal.

***Will the flu shot protect me against the H5N1 strain of bird flu?***

The flu shot for humans protects against the current human flu viruses, not bird flu viruses. A vaccine is being developed against H5N1 bird flu in case it changes and becomes a threat to humans.

***Should I ask my doctor for a prescription anti-flu drug?***

Tamiflu® and other antiviral drugs are usually used to treat people who are at risk for developing life-threatening complications from the flu. There is no reason to routinely ask for one of these drugs to keep at home. Over-use could result in limited supplies for those who need it most. In addition, over-use in other countries has already caused the bird flu virus to develop some

resistance to one drug, and continued over-use will only cause more problems. Finally, all drugs, including antivirals, can cause side effects and should only be used when necessary and under the supervision of a health care provider.

***How are we preparing for any outbreak of bird flu or a potential pandemic?***

NYSDAM and the United States Department of Agriculture have prevention and preparedness programs in place to deal with any outbreak of avian influenza in poultry.

Because scientists cannot predict if H5N1 will cause a pandemic, federal, state and local government and others are focusing on comprehensive public health efforts – increased monitoring for outbreaks, international cooperation, antiviral and vaccine stockpiles, and building capacity for vaccine production – that will help protect us no matter what pandemic strain emerges or where.

***For more information on avian influenza in animals and humans:***

- [Avian Influenza](#) - Centers for Disease Control and Prevention
- [Avian Influenza](#) - Animal and Plant Health Inspection Service
- [Avian Influenza](#) - World Health Organization
- [Avian Influenza](#) - New York State Department of Agriculture & Markets
- [Avian Influenza](#) - Food and Agriculture Organization of The United Nations's Animal Production and Health Division

*New York State Department of Health, January 31, 2006*

***West Nile Virus - Frequently Asked Questions***

**1. What is West Nile Virus?**

West Nile virus (WNV) is a mosquito-borne infection that can cause serious illness, and in some cases, death. Although a person's chances of getting sick are small, there are some simple steps you can take to reduce your risk of being bitten by mosquitoes.

**2. What are the symptoms of West Nile Virus?**

Most people who are infected with the West Nile virus will not have any type of illness. It is estimated that 20% of the people who become infected will develop West Nile fever: mild symptoms, including fever, headache, and body aches, occasionally with a skin rash and swollen lymph glands. In many individuals, these symptoms are so mild that they go unnoticed or undetected.

The symptoms of severe infection (West Nile encephalitis or meningitis) can include headache, high fever, neck stiffness, muscle weakness, stupor, disorientation, tremors, convulsions, paralysis, and coma. It is estimated that one in 150 persons infected with the West Nile virus will develop the more severe form of the disease. Usually, symptoms occur from three to 14 days after exposure. There is no specific treatment for viral infections, other than to treat the symptoms and provide supportive care.

**3. Who is at risk for getting West Nile Virus?**

All residents of areas where virus activity has been identified are at risk of getting West Nile virus; persons over 50 years of age are at the highest risk for severe disease.

**4. How is West Nile Virus transmitted?**

West Nile virus is primarily transmitted through the bite of an infected mosquito. Over 30 species of mosquitoes have been infected nationwide. WNV has been transmitted by blood

transfusion or organ transplantation in a small number of cases. As a result, U. S. blood collection agencies are screening blood donations for the presence of the virus.

These transfusion and transplant related cases make up a small percentage of those infected with WNV. Although persons needing blood transfusions or organ transplants should be aware of the risk of West Nile virus infection, the benefits of receiving needed transfusions or transplants outweigh the potential risk for infection.

Transplacental transmission (pregnant woman to unborn child), and transmission through breast-feeding, have also been documented. The number of these cases is small. Pregnant women should consult their health care provider for more information.

#### **5. Do all mosquitoes transmit disease?**

No. Most mosquitoes do not transmit disease. While there are about 70 different species of mosquitoes in New York State, only certain species have been associated with West Nile virus.

#### **6. Where do mosquitoes live and breed?**

Mosquitoes lay their eggs in moist areas, such as standing water. The eggs become larvae that remain in the water until the adults mature and fly off. Weeds, tall grass and shrubbery provide an outdoor home for adult mosquitoes. They can also enter houses through unscreened windows and doors, or broken screens. Many mosquitoes will breed in containers that hold water, such as flowerpots or discarded tires.

#### **7. When are mosquitoes most active?**

Some mosquitoes are active between dusk and dawn, when the air is calm. However, others will feed at any time of day. Mosquitoes prefer a warm, moist environment. They are active from early summer until late fall in New York State. In southern states that have a warm year-round climate, mosquitoes that transmit West Nile virus are active year round. New Yorkers should take measures to protect themselves from mosquito bites when traveling to these states.

#### **8. Which birds can carry West Nile Virus?**

In New York State, most West Nile virus-positive birds have been American crows. The State Health Department is using dead crow sightings to track West Nile virus, so it is important to report any dead crows to your local health department or to the toll-free dead bird hotline, 1-866-537-BIRD (2473) . Not all dead crows need to be tested for West Nile virus. If the bird is not going to be collected, you may dispose of it. Wear thick gloves, double bag the bird, and place it in the trash. Barehanded contact with dead animals should always be avoided.

#### **9. Can my pet be infected?**

Pets occasionally get West Nile virus from mosquito bites, but very seldom get sick. Horses are more susceptible to serious illness from WNV than are dogs and cats. Natural infection of a pet by contacting or eating an infected dead bird has not been definitively established, although it is safer to keep pets from contacting and eating dead animals.

#### **10. How can I protect myself and my family?**

To reduce the mosquito population around your home and property, reduce or eliminate all standing water:

- Dispose of tin cans, plastic containers, ceramic pots or similar water-holding containers.
- Dispose of used tires. Used tires are a significant mosquito breeding site. Call your local landfill or Department of Public Works to find out how to dispose of them properly.
- Drill holes in the bottoms of recycling containers that are kept outdoors.
- Make sure roof gutters drain properly, and clean clogged gutters in the spring and fall.
- Remove leaf debris from yards and gardens.
- Turn over wading pools and wheelbarrows when not in use.

- Change the water in birdbaths twice weekly.
- Clean vegetation and debris from edges of ponds.
- Clean and chlorinate swimming pools, outdoor saunas and hot tubs.
- Drain water from pool covers.
- Use landscaping to eliminate standing water that collects on your property.

### **11. Should we stay indoors?**

It is not necessary to limit outdoor activities. However, you can and should try to reduce your risk of being bitten by mosquitoes. In addition to reducing standing water in your yard, make sure all windows and doors have screens, and that all screens are in good repair. If West Nile virus is found in your area:

- Wear shoes and socks, long pants and a long-sleeved shirt when outdoors for long periods of time, or when mosquitoes are most active.
- Consider the use of mosquito repellent, according to directions, when it is necessary to be outdoors when mosquitoes are biting.

### **12. What is being done in my community to control mosquitoes?**

The New York State Department of Health, along with other state agencies, local health departments, colleges and environmental groups, has prepared a plan to address issues related to West Nile virus in the Empire State and has devised a preventive strategy to minimize the impact. Local communities are implementing various control measures based on geographic location and level of risk. For more information regarding activities in your specific area, contact your local health department, or visit the Department's Web site at <http://www.health.state.ny.us>.

***New York State Department of Health***

*Fight the Bite*

*Box 2000*

*Albany, New York 12220*

**World Wide Web**

<http://www.health.state.ny.us>

**Environmental Health Information:**

1-800-458-1158

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- Clean and chlorinate swimming pools, outdoor saunas and hot tubs.
- Drain water from pool covers.
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## ***Chronic Wasting Disease (CWD)***

### **What is Chronic Wasting Disease (CWD)?**

CWD is a disease found in some deer and elk populations, that damages portions of the brain and typically causes progressive loss of body condition, behavioral changes, excessive salivation and death. The cause of the disease is suspected to be a type of prion (protein infectious particle) that is found in some tissues of infected animals.

### **Where does CWD occur?**

CWD is a disease that is unique to North America. As of July, 2005, CWD has been found in **wild deer and/or elk** in Colorado, Illinois, Nebraska, New Mexico, New York, South Dakota, Utah, Wisconsin, Wyoming, and in the Canadian province of Saskatchewan. In **captive deer and/or elk**, it has been found in Colorado, Kansas, Minnesota, Montana, Nebraska, New York, Oklahoma, South Dakota, Wisconsin, Wyoming, and in the Canadian provinces of Alberta and Saskatchewan.

### **How is CWD transmitted?**

Experimental evidence indicates that infected deer and elk probably transmit the disease through animal-animal contact, and/or contamination of feed or water sources with saliva or bodily waste material. The transmission may be enhanced when deer and elk are congregated, such as around man-made feed and water stations.

### **How soon after CWD exposure do signs of infection appear?**

CWD has a long incubation period and typically takes at least 16 months for an infected animal to show signs of illness. Infected animals do not show signs of illness until they have been infected for a number of months.

### **Are domestic animals at risk for CWD?**

There is no indication to date that CWD is a threat to domestic animals or livestock other than deer or elk, and there have been no reports of CWD in dogs or cats.

### **Are prion diseases transmissible to humans?**

Although there is considerable ongoing research on this issue, there is no confirmed human neurologic disease linked to CWD at this time. In addition, there have never been any indications of human illness related to scrapie in sheep. However, ingestion of cattle infected with bovine spongiform encephalopathy (BSE) overseas appears to be related to human deaths from a new variant of a previously identified neurologic disease, Creutzfeldt-Jakob disease (vCJD).

### **Are there health risks for hunters in handling deer or elk?**

There is no evidence to date that hunters have a risk of acquiring CWD. Depending on how an animal is handled, there may be a risk of other diseases including rabies. Hunters should observe normal precautions around any animals, such as avoiding sick or strange-acting animals. They must report to their local health department any potential rabies exposures such as an animal bite or scratch, or contact between a person's eyes, nose, or mouth (mucous membranes) or fresh open wound with the animal's saliva, brain, or other nervous tissue.

### **What should be done if someone sees a sick deer/elk?**

Because a sick deer or elk could have rabies, if there has been human contact of concern (see above) the animal must be reported to the local health department. After the animal has been humanely euthanized, the local health department will send the head to the New York State Health Department's Rabies Laboratory for rabies testing. Animals that are negative for rabies will be submitted for subsequent CWD testing. If there has been no human contact, the sick

animal should be reported to the nearest New York State Department of Environmental Conservation office.

**Are there any precautions for handling, processing, or eating meat from deer or elk?**

To minimize the risk of transmission of any infectious diseases when handling or processing animals, the following precautions are recommended:

- Deer or elk that are observed to be ill, or found dead, should not be handled and should not be eaten.
- Wear rubber or latex gloves when handling or processing carcasses.
- Avoid handling or cutting through the skull or spinal cord. Use separate dedicated knives, saws and cutting boards to butcher deer, particularly if you cut through the spinal cord or skull (such as when removing antlers). Do not use regular kitchen utensils. Wash thoroughly with soap and water any knives, butchering tools, work surfaces, hands and any other part of the body that has been exposed to animal tissues, blood, urine, or feces. Equipment should then be rinsed with boiling (212 degree Fahrenheit) water or sanitized with a chemical sanitizer.
- As an additional precaution against CWD, soak cleaned knives and tools for one hour in a fresh solution of household chlorine bleach (unscented) mixed with an equal amount of water (e.g., 1 quart bleach with 1 quart of water – a 50% solution), air dry, then rinse with clean water. Wipe down cleaned counters and other surfaces with 50% bleach solution and allow them to air dry. If bleach contacts eyes, skin, or clothing, immediately wash affected area with water and remove affected clothing. Make sure that enough fresh air is available because bleach may cause eye, nose, or throat irritation.
- Should you decide to take the skull cap (e.g., with antlers), make sure to thoroughly clean the skull cap, utensils and work surfaces with bleach solution, as described above.
- Avoid handling brain or spinal tissues/fluids, saliva and mouth parts and wash hands thoroughly with soap and water afterward if such handling occurred. If these tissues or fluids get into a fresh open break in a person's skin or the eyes, mouth, or nose, contact the local health department to evaluate possible rabies exposure and need for testing the animal for rabies.
- Request if possible that individual animals are processed individually, without meat from other animals being added together.
- The brain, spinal cord and other nervous tissue, spleen, pancreas, eyes, tonsils, and lymph nodes of game may have CWD prions, and additional organs (liver, kidney, heart and salivary glands) may pose a risk of infection for a number of diseases. Normal field dressing will eliminate most of these organs and tissues. Hunters should have deer boned out and have as much fat, connective tissue and lymph nodes removed as possible.
- Although no current evidence links CWD to human health, out of an abundance of caution, we recommend that people not consume, distribute, or donate for human consumption a known or suspect CWD positive animal.
- For more information about handling, processing, or eating meat from deer or elk in other states, contact those state agriculture, wildlife, and health agencies.

**Are there any risks from deer waste or products?**

Although there is no indication of human infection due to contact with deer waste or products related to CWD-infected deer or elk, the following disease control precautions are recommended as general prevention for multiple diseases:

- Avoid contact with animal bodily waste material, and clean up animal waste from areas frequented by children.

- If there is skin contact with animal waste, wash the area with soap and water immediately.

### **How is CWD diagnosed?**

While apparently healthy animals might be infected, eventually infected animals will develop signs of illness. Definitive diagnosis for the disease currently requires laboratory testing of the brain and/or lymph nodes.

### **Can a specific deer or elk be tested?**

There is ongoing CWD surveillance in New York State, but a fee-for-service program of testing individual animals is not currently available. Because the CWD status for most animals will be unknown, precautions provided above for handling and consumption should be followed.

### **Where is there additional and updated information about CWD?**

More information about CWD is available from the following agencies:

- The New York State Department of Environmental Conservation:  
<http://www.dec.state.ny.us/website/dfwmr/wildlife/deer/cwd.html>
- The New York State Department of Agriculture and Markets:  
<http://www.agmkt.state.ny.us/AI/cwd.html>
- The New York State Department of Health:  
<http://www.nyhealth.gov/diseases/communicable/zoonoses/cwd.htm>
- Cornell University:  
<http://wildlifecontrol.info/CWD/default.htm>
- Additional information, including the status of CWD in other states, is also available from the USDA:  
<http://www.aphis.usda.gov/vs/nahps/cwd/>
- USGS National Wildlife Health Center:  
[http://www.nwhc.usgs.gov/research/chronic\\_wasting/chronic\\_wasting.html](http://www.nwhc.usgs.gov/research/chronic_wasting/chronic_wasting.html)
- Chronic Wasting Disease Alliance:  
<http://www.cwd-info.org>
- Other state agencies may have valuable information, particularly for deer or elk from those states. Wisconsin has a particularly useful Website with detailed information and photos for processing deer, and a videotape and transcript addressing questions about human health risks:  
<http://dnr.wi.gov/org/land/wildlife/whealth/issues/CWD/>

## ***Lyme Disease***

### ***What is Lyme disease?***

Lyme disease is caused by bacteria transmitted by the deer tick (*Ixodes scapularis*). Lyme disease may cause symptoms affecting the skin, nervous system, heart and/or joints of an individual. Over 45,000 cases have been reported to the New York State Department of Health since Lyme disease became reportable in 1986.

### ***Who gets Lyme disease?***

Lyme disease can affect people of any age. People who spend time in grassy and wooded environments are at an increased risk of exposure. The chances of being bitten by a deer tick are greater during times of the year when ticks are most active. Young deer ticks, called nymphs, are active from mid-May to mid-August and are about the size of poppy seeds. Adult ticks, which are approximately the size of sesame seeds, are most active from March to mid-May and from

mid-August to November. Both nymphs and adults can transmit Lyme disease. Ticks can be active any time the temperature is above freezing. Infected deer ticks can be found throughout New York State.

***How is Lyme disease transmitted?***

Not all deer ticks are infected with the bacteria that cause Lyme disease. Ticks can become infected if they feed on small animals that are infected. The disease can be spread when an infected tick bites a person and stays attached for a period of time. In most cases, the tick must be attached for 36 hours or more before the bacteria can be transmitted. Lyme disease does not spread from one person to another. Transfer of the bacteria from an infected pregnant woman to the fetus is extremely rare.

***What are the symptoms of Lyme disease?***

In 60-80 percent of cases, a rash resembling a bull's eye or solid patch, about two inches in diameter, appears and expands around or near the site of the bite. Sometimes, multiple rash sites appear. The early stage of Lyme disease is usually marked by one or more of the following symptoms: chills and fever, headache, fatigue, stiff neck, muscle and/or joint pain, and swollen glands. If Lyme disease is unrecognized or untreated in the early stage more severe symptoms may occur. As the disease progresses, severe fatigue, a stiff aching neck, and tingling or numbness in the arms and legs, or facial paralysis can occur. The most severe symptoms of Lyme disease may not appear until weeks, months or years after the tick bite. These can include severe headaches, painful arthritis, swelling of the joints, and heart and central nervous system problems.

***When do symptoms appear?***

Early symptoms usually appear within three to 30 days after the bite of an infected tick.

***Does past infection with Lyme disease make a person immune?***

Lyme disease is a bacterial infection. Even if successfully treated, a person may become reinfected if bitten later by another infected tick.

***What is the treatment for Lyme disease?***

Early treatment of Lyme disease involves antibiotics

***Earthquakes:***

**Prepare a Home Earthquake Plan**

- Choose a safe place in every room--under a sturdy table or desk or against an inside wall where nothing can fall on you.
- Practice DROP, COVER, AND HOLD ON at least twice a year. Drop under a sturdy desk or table, hold on, and protect your eyes by pressing your face against your arm. If there's no table or desk nearby, sit on the floor against an interior wall away from windows, bookcases, or tall furniture that could fall on you. Teach children to DROP, COVER, AND HOLD ON!
- Choose an out-of-town family contact.
- Consult a professional to find out additional ways you can protect your home, such as bolting the house to its foundation and other structural mitigation techniques.
- Take a first aid class from your local Red Cross chapter. Keep your training current.
- Get training in how to use a fire extinguisher from your local fire department.

- Inform babysitters and caregivers of your plan.

### **Eliminate Hazards, Including--**

- Bolting bookcases, china cabinets, and other tall furniture to wall studs.
- Installing strong latches on cupboards.
- Strapping the water heater to wall studs.

### **Prepare a Disaster Supplies Kit For Home and Car, Including--**

- First aid kit and essential medications.
- Canned food and can opener.
- At least three gallons of water per person.
- Protective clothing, rainwear, and bedding or sleeping bags.
- Battery-powered radio, flashlight, and extra batteries.
- Special items for infant, elderly, or disabled family members.
- Written instructions for how to turn off gas, electricity, and water if authorities advise you to do so. (Remember, you'll need a professional to turn natural gas service back on.)
- Keeping essentials, such as a flashlight and sturdy shoes, by your bedside.

### **Know What to Do When the Shaking Begins**

- DROP, COVER, AND HOLD ON! Move only a few steps to a nearby safe place. Stay indoors until the shaking stops and you're sure it's safe to exit. Stay away from windows. In a high-rise building, expect the fire alarms and sprinklers to go off during a quake.
- If you are in bed, hold on and stay there, protecting your head with a pillow.
- If you are outdoors, find a clear spot away from buildings, trees, and power lines. Drop to the ground.
- If you are in a car, slow down and drive to a clear place (as described above). Stay in the car until the shaking stops.

### **Identify What to Do After the Shaking Stops**

- Check yourself for injuries. Protect yourself from further danger by putting on long pants, a long-sleeved shirt, sturdy shoes, and work gloves.
- Check others for injuries. Give first aid for serious injuries.
- Look for and extinguish small fires. Eliminate fire hazards. Turn off the gas if you smell gas or think it's leaking. (Remember, only a professional should turn it back on.)
- Listen to the radio for instructions.
- Expect aftershocks. Each time you feel one, DROP, COVER, AND HOLD ON!
- Inspect your home for damage. Get everyone out if your home is unsafe.
- Use the telephone only to report life-threatening emergencies.

### **Your Local Red Cross Chapter Can Provide Additional Materials in English and Spanish:**

- "Are You Ready for a Fire?" (ARC 4456)

- "Your Family Disaster Plan" (ARC 4466)
- "Your Family Disaster Supplies Kit" (ARC 4463)

### **Materials for Children:**

- "Be Ready 1-2-3" involves puppets who give important safety information to children ages 3-8 about residential fire safety, winter storms, and earthquakes.
- "Disaster Preparedness Coloring Book" (PDF File) (ARC 2200, English, or ARC 2200S, Spanish (PDF File)) for children ages 3-10.
- "Adventures of the Disaster Dudes" (ARC 5024) video and Presenter's Guide for use by an adult with children in grades 4-6.
- "After the Quake" Coloring Book (ARC 2201, English, or ARC 2201S, Spanish)

And remember . . . when an earthquake, tornado, flood, fire, or other emergency happens in your community, you can count on your local American Red Cross chapter to be there to help you and your family. Your Red Cross is not a government agency and depends on contributions of your time, money, and blood. For more information, please contact your local American Red Cross chapter or emergency management office.

If you would like permission to use the information about earthquakes on this page in a newsletter or other publication, or on your Website, please e-mail us at:  
[internet@usa.redcross.org](mailto:internet@usa.redcross.org)

### **READ THIS IF YOU HAVE PETS. This is from the ASPCSA and provides tips for pet owners who want to be prepared for an emergency.**

Emergencies come in many forms, and they may require anything from a brief absence from your home to permanent evacuation. Each type of disaster requires different measures to keep your pets safe. The best thing you can do for yourself and your pets is to be prepared.

#### **Step 1 Get a Rescue Alert Sticker**

This easy-to-use sticker will let people know that pets are inside your home. Make sure it is visible to rescue workers, and that it includes 1) the types and number of pets in your household; 2) the name of your veterinarian; and 3) your veterinarian's phone number. If you must evacuate with your pets, and if time allows, write "EVACUATED" across the stickers.

To get an emergency pet alert sticker for your home, please [fill out our online order form](#); please allow 6-8 weeks for delivery. Your local pet supply store may also sell similar stickers.

#### **Step 2 Arrange a Safe Haven**

Arrange a safe haven for your pets in the event of evacuation. DO NOT LEAVE YOUR PETS BEHIND. Remember, if it isn't safe for you, it isn't safe for your pets. They may become trapped or escape and be exposed to numerous life-threatening hazards. Note that Red Cross disaster shelters will not accept pets because of health and safety regulations, so it is imperative that you have determined where you will bring your pets ahead of time:

- Contact your veterinarian for a list of preferred boarding kennels and facilities.
- Ask your local animal shelter if they provide emergency shelter or foster care for pets.
- Identify hotels or motels outside of your immediate area that accept pets.

- Ask friends and relatives outside your immediate area if they would be willing to take in your pet.

### **Step 3 Emergency Supplies and Traveling Kits**

Keep an Evac-Pack and supplies handy for your pets. Make sure that everyone in the family knows where it is. This kit should be clearly labeled and easy to carry. Items to consider keeping in or near your pack include:

- Pet first-aid kit and guide book (ask your vet what to include, or [visit the ASPCA Store](#) to buy one online)
- 3-7 days' worth of canned (pop-top) or dry food (be sure to rotate every two months)
- Disposable litter trays (aluminum roasting pans are perfect)
- Litter or paper toweling
- Liquid dish soap and disinfectant
- Disposable garbage bags for clean-up
- Pet feeding dishes
- Extra harness and leash (Note: harnesses are recommended for safety and security)
- Photocopies of medical records and a waterproof container with a two-week supply of any medicine your pet requires (Remember, food and medications need to be rotated out of your emergency kit—otherwise they may go bad or become useless.)
- Bottled water, at least 7 days' worth for each person and pet (store in a cool, dry place and replace every two months)
- A traveling bag, crate or sturdy carrier, ideally one for each pet
- Flashlight
- Blanket (for scooping up a fearful pet)
- Recent photos of your pets (in case you are separated and need to make "Lost" posters)
- Especially for cats: Pillowcase or EvackSack, toys, scoopable litter
- Especially for dogs: Long leash and yard stake, toys and chew toys, a week's worth of cage liner.

You should also have an emergency kit for the human members of the family. Items to include: Batteries, duct tape, flashlight, radio, multi-tool, tarp, rope, permanent marker, spray paint, baby wipes, protective clothing and footwear, extra cash, rescue whistle, important phone numbers, extra medication and copies of medical and insurance information.

### **Step 4 Choose "Designated Caregivers"**

This step will take considerable time and thought. When choosing a *temporary caregiver*, consider someone who lives close to your residence. He or she should be someone who is generally home during the day while you are at work or has easy access to your home. A set of keys should be given to this trusted individual. This may work well with neighbors who have pets of their own—you may even swap responsibilities, depending upon who has accessibility. When selecting a *permanent caregiver*, you'll need to consider other criteria. This is a person to whom you are entrusting the care of your pet in the event that something should happen to you. When selecting this "foster parent," consider people who have met your pet and have successfully cared for animals in the past. Be sure to discuss your expectations at length with a permanent caregiver, so he or she understands the responsibility of caring for your pet. [Click here](#) for information about pet trusts.

### **Step 5 Evacuation Preparation**

If you must evacuate your home in a crisis, plan for the worst-case scenario. If you think you may be gone for only a day, assume that you may not be allowed to return for several weeks.

When recommendations for evacuation have been announced, follow the instructions of local and state officials. To minimize evacuation time, take these simple steps:

- Store an emergency kit and leashes as close to an exit as possible.
- Make sure all pets wear collars and tags with up-to-date identification. Your pet's ID tag should contain his name, telephone number, and any urgent medical needs. Be sure to write your pet's name, your name and contact information on your pet's carrier.
- The ASPCA recommends microchipping your pet as a more permanent form of identification. A microchip is implanted in the animal's shoulder area, and can be read by scanner at most animal shelters.
- Always bring pets indoors at the first sign or warning of a storm or disaster. Pets can become disoriented and wander away from home during a crisis.

Consider your evacuation route and call ahead to make arrangements for boarding your pet outside of the danger zone at the first sign of disaster.

### **Step 6 Geographic and Climatic Considerations**

Do you live in an area that is prone to certain natural catastrophes, such as tornadoes, earthquakes or floods? If so, you should plan accordingly.

- Determine well in advance which rooms offer safe havens. These rooms should be clear of hazards such as windows, flying debris, etc.
- Choose easy-to-clean areas such as utility rooms, bathrooms, and basements as safe zones.
- Access to a supply of fresh water is particularly important. In areas that may lose electricity, fill up bathtubs and sinks ahead of time to ensure that you have access to water during a power outage or other crises.
- In the event of flooding, go to the highest location in your home, or a room that has access to counters or high shelves where your animals can take shelter.

If emergency officials recommend that you stay in your home, it's crucial that you keep your pets with you. Keep your Evac-Pack and supplies close at hand. Your pets may become stressed during the in-house confinement, so you may consider crating them for safety and comfort.

### ***Information for Livestock Owners and Farmers***

If you have large animals such as horses, cattle, sheep, goats, or pigs on your property, be sure to prepare before a disaster.

#### **Preparation Guidelines:**

- Ensure all animals have some form of identification that will help facilitate their return.
- Evacuate animals whenever possible. Arrangements for evacuation, including routes and host sites, should be made in advance. Alternate routes should be mapped out in case the planned route is inaccessible.
- The evacuation sites should have or be able to readily obtain food, water, veterinary care, handling equipment and facilities.
- Make available vehicles and trailers needed for transporting and supporting each type of animal. Also make available experienced handlers and drivers.

Note: It is best to allow animals a chance to become accustomed to vehicular travel so they are less frightened and easier to move.

- If evacuation is not possible, a decision must be made whether to move large animals to available shelter or turn them outside. This decision should be determined based on the type of disaster and the soundness and location of the shelter (structure).

### **Cold Weather Guidelines:**

When temperatures plunge below zero, livestock producers need to give extra attention to their animals. Prevention is the key to dealing with hypothermia, frostbite and other cold weather injuries in livestock.

Making sure your livestock has the following help prevent cold-weather maladies:

- Shelter
- Plenty of dry bedding to insulate vulnerable udders, genitals and legs from the frozen ground and frigid winds.
- Windbreaks to keep animals safe from frigid conditions.
- Plenty of food and water

Also, take extra time to observe livestock, looking for early signs of disease and injury. Severe cold-weather injuries or death primarily occur in the very young or in animals that are already debilitated. Cases of coldweather-related sudden death in calves often result when cattle are suffering from undetected infection, particularly pneumonia. Sudden, unexplained livestock deaths and illnesses should be investigated quickly so that a cause can be identified and steps can be taken to protect remaining animals.

Animals suffering from frostbite don't exhibit pain. It may be up to two weeks before the injury becomes evident as freeze-damaged tissue starts to slough away. At that point, the injury should be treated as an open wound and a veterinarian should be consulted.

### **Disaster Assistance Funding Summary from the USDA's National Agricultural Library Rural Information Center**

- **Disaster Assistance Programs for  
Farmers and Ranchers**

*USDA. Farm Service Agency.*

- Emergency Farm Loans

- **Disaster Unemployment Assistance**

*Department of Labor*

Disaster Unemployment Assistance provides financial assistance to individuals whose employment or self-employment has been lost or interrupted as a direct result of a major disaster declared by the President of the United States.

- **Emergencies & Disasters**

*DHS. Federal Emergency Management Agency.*

- Disaster Assistance for Individuals
- DisasterHelp.gov
- Recover & Rebuild
- A Guide to the Disaster Declaration Process and Federal Disaster Assistance
- Information for Pet Owners
- Information for Livestock Owners

- **Federal Funding Sources for Rural Areas Database**

*USDA. NAL. Rural Information Center.*

- **Grants.gov: Disaster Prevention and Relief**

Federal programs that assist in disasters.

- **Home and Community Disaster Recovery Assistance**

*Department of Housing and Urban Development*

Critical housing and community development resources to aid disaster recovery.

- **National Voluntary Organizations Active in Disaster**

*National Voluntary Organizations Active in Disaster.*

- **Recovery from Terrorist Attacks: A Catalog of Selected Federal Assistance Programs (PDF|65.8KB)**

*United States Senate.*

- **Small Business Disaster Assistance**

*Small Business Administration*

Provides various types of loans for businesses of all sizes and homeowners and renters in the event of a disaster. This includes physical disaster loans, economic injury loans, military reservists' loans and home and personal property loans.