

**Roman Catholic
Archdiocese of
Boston**

in partnership with **RATIO**
RISK SERVICES

Hurricane Preparedness Guide for Parishes & Schools

DRAFT

2023 Hurricane Season



Ratio Risk Services and the Diocese of Boston promote the safety and security of diocesan parishes and schools by assisting locations in controlling losses, responding to claims, and creating a culture of risk awareness.

This guide outlines measures you can take to help mitigate damages and save lives in the event of a hurricane. Ratio Risk Services and the Diocese of Boston assume no liability arising out of the use or application of this information.

If you have any questions or concerns about any of the information in this guide, please contact our office at info@ratorisk.com.

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BE PREPARED!

Hurricanes are massive storm systems that form over ocean water and often move toward land, bringing heavy rain, high winds, storm surges, flooding and even tornadoes. These storms can be extremely dangerous to lives and property, even for those who live far inland. The Office of Risk Management urges you to know the risks associated with hurricanes and to make preparations in advance in order to avoid or mitigate injuries, loss of life, or catastrophic property damage. Catholic parishes have additional risks, such as the loss of valuable sacramental records and sacred vessels. We cannot emphasize enough the importance of planning. Diligent and ongoing preparation is vital.

HURRICANE OR TROPICAL STORM?

Hurricanes and tropical storms are types of tropical cyclones - a rotating, organized system of clouds and thunderstorms that originates over tropical or subtropical waters and has a closed low-level circulation. Tropical cyclones with maximum sustained surface winds of less than 39 miles per hour (mph) are called tropical depressions. Those with maximum sustained winds of 39 mph or higher are called tropical storms.

When a storm's maximum sustained winds reach 74 mph, it is called a hurricane. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating, or category, based on a hurricane's maximum sustained winds. The higher the category, the greater the hurricane's potential for property damage.

Tropical Storm – wind speed between 39 MPH and 73 MPH

Hurricane – wind speed between 74 MPH and 110 MPH

Major Hurricane – wind speed greater than 110 MPH

A hurricane can last for two weeks or more over open water and can run a path across the entire length of the Eastern Seaboard. Hurricanes generally lose about half their intensity in the 12 hours after landfall. The eye of a storm is usually 20-30 miles wide and the overall diameter of the hurricane may extend over 400 miles.

HURRICANE SEASON

The Atlantic Hurricane Season begins June 1 and ends November 30 of each year. Historically, the most active time is mid-August through mid-October. The National Oceanic and Atmospheric Administration (NOAA) reports that each year, an average of eleven tropical storms develop over the Atlantic Ocean, Caribbean Sea and Gulf of Mexico. Many of these remain over the ocean and never impact the U.S. coastline.

Hurricane damage costs billions of dollars. During the 20th century, 23 hurricanes each caused damage in excess of \$1 billion (adjusted for inflation). In an average 3-year period, roughly five hurricanes strike the U.S. coastline, killing approximately 50-100 people anywhere from Texas to Maine. The good news is that the number of people injured or killed has been declining, largely due to improvements in forecasting and emergency preparedness. This proves that although hurricanes cannot be controlled, our vulnerability can be reduced through preparedness.



HURRICANE CLASSIFICATIONS

THE SAFFIR-SIMPSON HURRICANE SCALE

The Saffir-Simpson Hurricane Scale was developed to categorize hurricanes according to the strength of their winds. A Category 1 storm has the lowest wind speeds while a Category 5 hurricane has the strongest. The following table shows the breakdown; for a more detailed description of the Saffir-Simpson Hurricane Scale, see Appendix A.

Category	Sustained Winds	Damage
1	74-95 mph	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely to result in power outages that could last a few to several days.
2	96-110 mph	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees may be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (Major)	111-129 mph	Devastating damage will occur: Well-built frame homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water may be unavailable for several days to weeks after the storm passes.
4 (Major)	130-156 mph	Catastrophic damage will occur: Well-built frame homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (Major)	>157 mph	Catastrophic damage will occur: A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.



WHY CLASSIFICATIONS CAN BE MISLEADING

Although the scale is helpful in terms of assessing potential damage from a storm, please note that these classifications are relative as lower category storms can sometimes inflict greater damage than higher category storms, depending on where they strike and the particular hazards they bring. Hurricane Katrina was a Category 3 storm when it made a second landfall in southeast Louisiana yet it caused catastrophic damage due to the storm surge and subsequent collapse of the levee system. Tropical storms can also produce significant damage and loss of life, mainly due to flooding.

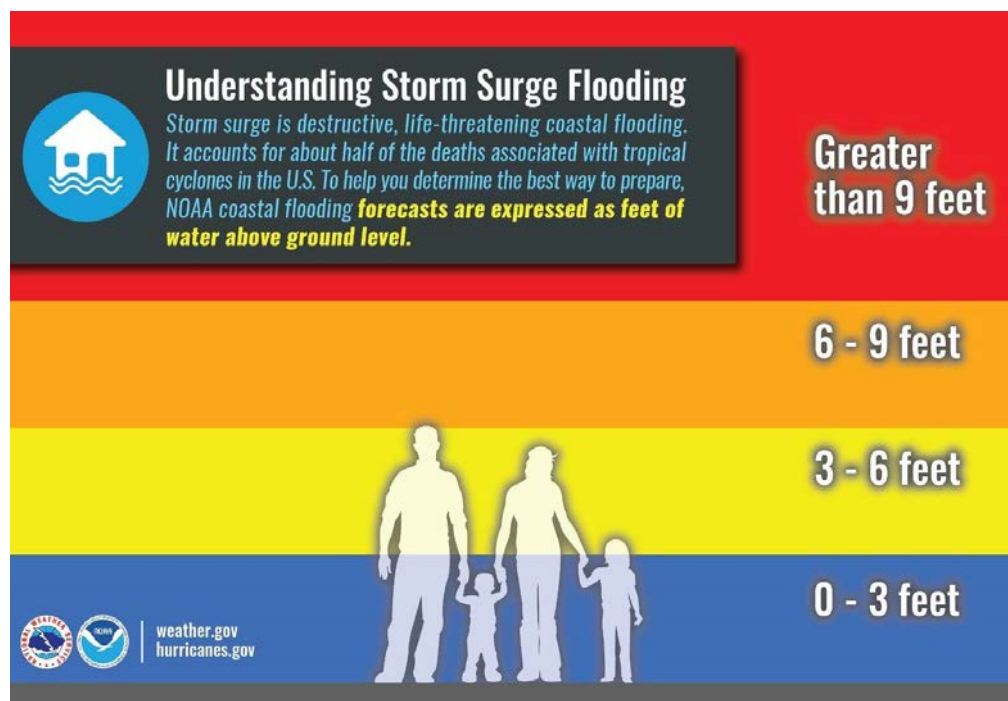
HURRICANE THREATS

Depending upon your geographic location, hurricanes have the potential to inflict damage in numerous ways. Storm surges, high winds, heavy rains and tornadoes are the greatest threats posed by hurricanes.

STORM SURGE

A storm surge has the greatest potential to kill more people than any of the other hurricane hazards. For this reason, NOAA advises that those who may be affected by a storm surge plan for a storm that is one category more intense than is forecast.

A storm surge is water that is pushed toward the shore by winds swirling around the storm. It is not uncommon for large domes of water to measure 50-100 miles wide. It can raise the water level several feet or more, causing flooding in normally dry areas many miles from the shore, especially in low-lying coastal areas. Moving water is an incredibly powerful force. Just one foot of water can carry a small car, but during storm surge, many feet of water can move onshore. The force of this water can not only carry cars, but can completely sweep houses and buildings off of their foundations. Damage from storm surge can be catastrophic.



The deadliest natural disaster in American history was the hurricane that hit Galveston, Texas, in 1900. More than 8,000 people died during the hurricane, which had a 15-foot storm surge, in a city where the highest point was less than nine feet above sea level. This means that even in the highest areas of the city, water was around 6 feet deep. Other hurricanes with high death tolls, like Sandy in 2012, Katrina in 2005, and Camille in 1969, all had large numbers of deaths from storm surge. Roughly half of all U.S. deaths from tropical cyclones are due to the storm surge. **A storm surge is the greatest potential threat to life and property associated with hurricanes.**



HEAVY RAINS

Hurricanes typically produce rainfall of 6-12 inches or more, often resulting in severe flooding. In general, rains are heaviest with slower moving storms (less than 10 mph). The heaviest rains usually occur in a 6-hour period before landfall and 6 hours after. However, as was the case with Hurricane Irene, storms can last for days, depending upon the inland weather features they interact with. Flash floods and mudslides are a danger for inland areas, and inland flooding has been the primary cause of hurricane fatalities over the past 30 years.



In addition to the property damage done to church buildings and schools due to flooding, flooded roads could make travel and evacuations difficult, and may be present a hazard to those in vehicles or on foot. Floodwaters can also contain harmful bacteria, chemicals, wildlife and other dangerous objects. Extreme rain from hurricanes can even flood areas that aren't normally prone to flooding. Flooding can happen hundreds of miles inland, and can persist for several days after a storm.





RIP CURRENTS


Waves from distant storms can produce deadly rip currents and rough surf on beaches very far away. Good weather at the beach itself does NOT mean the ocean is safe. Even storms more than 1,000 miles away can cause impacts.

HIGH WINDS

High winds begin well before a hurricane makes landfall. The amount of damage inflicted by these winds depends on whether your community has an effective mitigation program in place and has prepared in advance of the storm. High winds can damage or demolish structures. Wind damage can lead to large areas with power and communications outages, as well as uproot trees and make roads impassable due to debris. Signs, roofing material, and other items left outside can become flying missiles during hurricanes. Severe injuries can result if someone is hit by wind-swept debris.

Hurricane Preparedness
Know Your Risk: Water & Wind
weather.gov/hurricane

-  Consider your threats: storm surge, flooding from heavy rain, strong winds, tornadoes, rip currents
-  Determine if you live in a flood-prone area
-  Find out if you live in an evacuation zone
-  Identify your home's structural risks (mobile homes & basements can be especially vulnerable)





NOAA Tornado Facts

- When associated with hurricanes, tornadoes are not usually accompanied by hail or extensive lightning, clues that citizens in other parts of the country watch for.
- Tornado production can occur for days after landfall when the tropical cyclone remnants maintain an identifiable low pressure circulation.
- Tornadoes can also develop at any time of the day or night during landfall. However, by 12 hours after landfall, tornadoes tend to occur mainly during daytime hours.

TORNADOES IN THE WAKE OF HURRICANES

Tornadoes are incredibly violent local storms that extend to the ground with whirling winds that can reach 300 mph. When there is a hurricane, often a tornado will follow, adding to the storm's destructive power. NOAA's studies have shown that more than half of the land falling hurricanes produce at least one tornado. Although tornadoes associated with hurricanes are less intense than those that occur in the Great Plains, the effects of tornadoes when added to hurricane-force winds can produce substantial damage. Scientists are closer to predicting tornadoes than they were a few years ago, but it is still difficult to predict tornadoes far in advance. For this reason, **preparedness is critical.**

ALL MASSACHUSETTS RESIDENTS CAN BE EFFECTED

The Massachusetts Emergency Management Agency (MEMA) warns residents of Massachusetts that **hurricanes are not just coastal events.** The small size of the state means that everyone in the Commonwealth can be severely impacted by a major storm. MEMA also points out that New England is in the "unenviable position" of receiving all three types of hurricane threats. Depending upon the storm's track and landfall location, Massachusetts can experience:

1. Coastal inundation from the storm surge
2. Widespread inland river flooding
3. Widespread wind damage

For a brief synopsis of past hurricanes in the New England area, see Appendix B.





IRENE IN NEW ENGLAND - A CAUTIONARY TALE

In August 27, 2011, Hurricane Irene made landfall in North Carolina as a Category 1 hurricane. By the time it made another landfall near Atlantic City, New Jersey the next day, it was downgraded to a tropical storm. Thus, to New Englanders it is technically referred to as Tropical Storm Irene. Even though Irene was not as powerful as predicted, it inflicted tremendous damage in its aftermath, mostly due to catastrophic flooding and widespread loss of electricity in Central and Western Massachusetts. According to the Boston Globe, “Hurricane Irene wound up by most estimates as one of the top ten most destructive and deadly hurricanes to hit the US since 1980.”¹

In the New England area, Vermont suffered the greatest damage with the destruction of bridges, roads, homes and farms. Irene is an example of how even a tropical storm can inflict major damages. Tropical Storm Irene is a reminder that hurricanes and tropical storms can impact the entire Commonwealth, not just coastal regions, and that all Massachusetts residents need to prepare for the possibility of hurricane impacts.

HURRICANE ADVISORIES: WATCHES AND WARNINGS

The National Hurricane Center issues advisories to alert citizens of the possibility of hurricanes. They will be issued in the form of a Watch or a Warning.

A **HURRICANE WATCH** is issued when hurricane conditions (sustained winds of 74 mph or higher) are **possible** within the specified area. **Hurricane preparedness activities become difficult once winds reach tropical storm force**; therefore, watches are issued 48 hours in advance of the anticipated onset of tropical storm-force winds.

A **HURRICANE WARNING** is issued when hurricane conditions are **expected** somewhere within the specific area. Warnings are generally issued 36 hours in advance of the hurricane. In addition to the media, there are many ways citizens can receive these advisories.



¹Lane Turner. “The Big Picture.” Boston Globe 29 August 2011, http://www.boston.com/bigpicture/2011/08/hurricane_irene.html



STAYING INFORMED

NOAA WEATHER RADIO

All parishes and schools should be equipped with a NOAA weather radio receiver, as NOAA broadcasts cannot be heard on a simple AM/FM radio receiver. Find a radio equipped with a warning signal, and be sure to store a set of backup batteries with your radio. There are many radio receiver options, but NOAA suggests buying one that carries the NOAA logo. For more information on purchasing a NOAA Weather Radio, please see: <https://www.weather.gov/mob/nwrhelp>

There are also NOAA Weather Radio apps for smart phones that can be programmed to alert you when NOAA issues a weather advisory for your area. For more information, search for “NOAA Weather Radio” on the iTunes app store or Android Marketplace.



WIRELESS EMERGENCY ALERTS

The federal government, in collaboration with wireless carriers, has launched a service called Wireless Emergency Alerts (WEA), a system to automatically warn people of dangerous weather emergencies via text messaging to cellphones. The service is free and no sign-up is required. Warnings will be location-based. The text alerts will be brief and are intended to prompt people to seek more information. A National Weather Service spokesman warned, however, that people should not rely only on mobile devices for weather warnings since such devices can lose power; it is still critical to own a NOAA weather radio.

Most WEAs are issued by the National Weather Service (NWS). These alerts are only used for the most imminent and severe weather conditions, which includes tornadoes, flash floods, hurricanes, and tsunamis. The alerts are delivered on technology that overrides any wireless network congestion and delays and allows the information to target cellphones within the impact area. A WEA alerts users with a special tone and vibration. If you receive a WEA, you should follow the protective actions advised in the message.

You do not need to subscribe to any service to receive alerts. The alerts are sent to all WEA-enabled devices in the impacted region. To find out whether you have a WEA-enabled phone, you should contact your mobile carrier. For more information, go to: <https://www.ctia.org/consumer-resources/wireless-emergency-alerts>

LOCAL NOTIFICATION SYSTEMS

MEMA urges residents to contact their local Emergency Management Director to find out whether their community uses its own alert and warning system, such as Reverse 911 or Code Red, for important local information. Your local official will be able to direct you how to enroll in these notification systems. To find your local Emergency Management Director, go to: <https://www.mass.gov/find-your-local-emergency-management-director-emd>

Residents can also check if their local public safety agencies (police, fire, emergency management) have social media accounts and if so follow them for local emergency information.

2-1-1 HOTLINE

2-1-1 is the Commonwealth's primary telephone information call center. Call 2-1-1 for information about the location of open shelters, transportation or other restrictions due to a declared state of emergency, post disaster assistance, ways to volunteer or donate, or other services you may need. Mass 2-1-1 is a 24/7 resource to connect callers to information about critical health and human services programs.



WEBSITES TO VISIT FREQUENTLY

For a list of active weather warnings, watches, and advisories from the National Weather Service, see <https://alerts.weather.gov/cap/ma.php?x=1>

For power outage information, see the Massachusetts Power Outage Map: <http://mema.mapsonline.net/public.html> and Power Outage Safety Tips: <https://www.mass.gov/info-details/power-outage-safety-tips>.

RISK ALERTS

Through our partner, Ratio Risk Services, we will issue Risk Alerts to your locations via email or text message. The goal is to alert relevant personnel, such as facility managers and custodians, when there is an imminent weather event and to provide information to help you mitigate the risks. If you are not receiving alerts and would like to sign up, please email info@ratorisk.com.

PREVENT PROPERTY DAMAGE

There are actions you can take year-round to prepare your staff and facilities for hurricane season. In addition to protecting the physical plant, you also want to plan to secure valuables and vital documents, such as sacramental registers, sacred vessels and, most importantly, the Blessed Sacrament. See **Appendix E for a Preparation Checklist**.

SECURING YOUR FACILITIES

Make modifications to your facility in advance to help protect it from the effects of hurricanes and other natural disasters. Check with your local building official to see what modifications will work for your facility. For the city of Boston, call **Boston Building & Structures Division** at 617-635-5306 and ask to speak with a building inspector.

REINFORCE OR REPLACE GARAGE DOORS

High winds can damage garage doors or even blow them in. To help protect your garage and its contents, reinforce existing garage doors or replace doors that are not working properly.

INSTALL STORM SHUTTERS OR PLYWOOD COVERS FOR WINDOWS

High winds and windblown debris can easily break unprotected windows. Besides the damage to the windows, wind or debris entering your building has the potential to cause interior damage and injure occupants. Protecting windows not only helps you avoid structural damage; it also reduces the likelihood that occupants will be hurt by broken glass and debris. If you are not able to install storm shutters, be sure to invest in plywood covers. Keep pre-drilled plywood coverings in an easily accessible storage area that will allow you to do a quick installation before the arrival of a severe hurricane or evacuation.





BRACE GABLE END ROOF FRAMING

Gable end roofs are more susceptible to damage by high winds than hip roofs or flat roofs. If the framing and the rest of the roof are not adequately braced to resist the wind, the roof can fail. If your facility has a gable roof, check to see if the roof framing is adequately braced. If you are unsure, check with your local building department. After inspecting your roof framing, a building official can tell you if bracing is required and how it should be added. See **Appendix F for a FEMA fact sheet on Brace Gable End Roof Framing.**

GROUNDS KEEPING AND ROUTINE MAINTENANCE

Maintaining your grounds and performing routine facility maintenance throughout the year is critical to ensure your facilities are prepared for whatever emergencies may arise. Procedures such as pruning trees year-round, regularly removing damaged or dead branches and removing dead or dying trees and bushes should be a part of your regular maintenance routine. Conduct regular inspections to be sure drains and gutters are unobstructed and clear of debris and inspect roofs for damage or leaks.

When a hurricane is imminent, you will need to secure anything that might tear loose or blow away, such as garbage cans, grills, potted plants, signs or lawn furniture. The basic rule is that if it is not nailed down, find a secure place for it. To prepare, be sure to designate and clear out an area to store these objects ahead of time, such as a garage or basement.

BACKUP SYSTEMS

Consider the need for backup systems. FEMA recommends the following:

- Portable pumps to remove flood water
- Alternate power sources such as generators or gasoline-powered pumps
- Battery-powered emergency lighting
- Be sure all equipment is fully operational and properly installed

SECURE VITAL DOCUMENTS

When Hurricane Katrina hit New Orleans in August 2005, many sacramental records were either lost in the floods or badly contaminated from mold and other environmental factors. The Catholic News Service (CNS) reported that two months after Katrina, sacramental records from 25 of the archdiocese's 151 parishes and missions were still unaccounted for.³ Those records included vital information on marriages, baptisms, first communions, confirmations and funerals. An extensive restoration project was initiated after the hurricane and resulted in the recovery and restoration of many damaged records.

Dr. Emilie Leumas, archivist for the Archdiocese of New Orleans, recommends that pastors take vital documents with them at the time of evacuation. Charles Nolan, former archivist for the New Orleans Archdiocese, told CNS: "The pastors who took their records with them when they evacuated before the storm or took the records to a safe place, those records have come here" to the archives at the Catholic Life Center in Baton Rouge.

In addition to sacramental registers, other vital documents such as architectural drawings should be scanned and sent to the archdiocesan archive office ahead of time, if possible. In the event that a building suffers physical damage from the hurricane, the architectural drawings will be an important resource.

³ Ron Brocato. "Archivists Work to Save Parish Sacramental Records from Mold, Mildew." Catholic News Service 28 October 2005: <http://www.catholicnews.com/data/stories/cns/0506159.htm>



To ensure the safety and preservation of sacramental registers, school and cemetery records on a daily basis, begin by using bindings and paper that are permanent, durable and acid-free. Use only archival-quality ink. If these documents are subjected to water, mold or humidity, archivists may be able to restore them if the proper ink and paper were used to create these documents.

Permanent, inactive records should be stored in boxes (preferably water-tight plastic bins) on high shelves. Do not store files in the basement. Please note that filing cabinets and safes are generally not waterproof. See photos to right for images of water-damaged registries.

ELECTRONIC RECORDS

To protect electronic records from permanent loss, it is vital that locations set up a procedure to remotely back up files. There are many companies that provide this service. Be sure, however, to investigate the integrity of the company and ask questions about the security measures used as security measures vary from provider to provider. Ask the following questions: How often will backups be done? What kind of physical security is in place for the actual hardware that the data will be stored on? What encryption methods will be used? Will your data be on a dedicated server or a shared server? If you are using a shared server, what barriers are in place to keep your information separate from other organizations?



Water damaged baptism register.



Water damaged vital records.

SAFEGUARD THE BLESSED SACRAMENT AND VESSELS

When an evacuation order is issued, pastors should plan on the consumption of the Blessed Sacrament or make plans to take the Blessed Sacrament and sacred vessels with them. Unconsecrated hosts that are left behind should be stored in airtight and preferably waterproof containers.

INVENTORY OF VALUABLES AND OFFICE EQUIPMENT

To help expedite the claims process after a hurricane event, keep an inventory of church valuables as well as office equipment. The easiest way to do this is to take photos and store the photos electronically. Start by taking a photo of each wall and the interior of every room where equipment and valuables are kept. Alternatively, document each item in writing. Priests should be sure to take pictures or keep descriptions of higher-value items such as chalices, patens and vestments.



Blessed Sacrament



PLANNING FOR PERSONS WITH DISABILITIES AND ACCESS AND FUNCTIONAL NEEDS

Disaster preparedness takes on added dimensions for people with disabilities and access and functional needs. The keys to effective disaster preparedness, such as building a kit, making a plan, and staying informed, applies to all of us. But people with special needs and their families should approach preparedness planning with additional considerations.

TIPS FOR PEOPLE WHO ARE DEAF OR HARD OF HEARING

- Weather radio (with text display and a flashing alert)
- Extra hearing-aid batteries
- Pen and paper (in case you have to communicate with someone who does not know sign language)
- Battery-operated lantern to enable communication by sign language or lip reading, especially when the electricity is out and it's dark.

TIPS FOR PEOPLE WHO ARE BLIND OR HAVE LOW VISION

- Mark emergency supplies with Braille labels or large print. Keep a list of your emergency supplies and where you bought them on a portable flash drive or make an audio file that is kept in a safe place where you can access it.
- Keep communication devices for your particular needs, such as a Braille or deaf-blind communications device, as part of your emergency supply kit.

TIPS FOR PEOPLE WITH A MOBILITY DISABILITY

- If you use a power wheelchair have a lightweight manual chair available as a backup if possible.
- Show others how to assemble, disassemble and operate your wheelchair.
- Purchase an extra battery for a power wheelchair or other battery-operated medical or assistive technology devices. If you can't purchase an extra battery, find out what agencies, organizations or local charitable groups can help you buy one. Keep extra batteries charged at all times.
- Consider keeping a patch kit or can of sealant for flat tires and/or extra inner tube if wheelchair or scooter is not puncture proof.
- Keep an extra mobility device such as a cane or walker if you use one.
- Keep a portable air pump for wheelchair tires.
- If you use a seat cushion to protect your skin or maintain your balance and you must evacuate, consider keeping an extra cushion on hand.
- Communicate with neighbors who can assist you if you need to evacuate the building.





TIPS FOR PEOPLE WITH SPEECH DISABILITY

- If you use an augmentative communications device or other assistive technologies, plan how you will evacuate with the devices or how you will replace equipment if lost or destroyed. Keep model information and note where the equipment came from (Medicaid, Medicare, private insurance, etc.).
- Plan how you will communicate with others if your equipment is not working, including laminated cards with phrases and/or pictogram.

INDIVIDUALS WITH INTELLECTUAL OR DEVELOPMENTAL DISABILITIES

- Keep handheld electronic devices charged and loaded with videos and activities.
- Purchase spare chargers for electronic devices and keep them charged.
- Include sheets and twine or a small pop-up tent (to decrease visual stimulation in a busy room or to provide instant privacy).
- Consider a pair of noise-canceling headphones to decrease auditory stimuli.
- Have comfort snacks available.

TIPS FOR INDIVIDUALS WITH ALZHEIMER'S AND RELATED DEMENTIA

- Do not leave the person alone. Even those who aren't prone to wandering away may do so in unfamiliar environments or situations.
- If evacuating, help manage the change in environment by bringing a pillow and blanket or other comforting items they can hold onto.
- When at a shelter, try to stay away from exits and choose a quiet corner.
- If there is an episode of agitation, respond to the emotions being expressed. For example, say "You're frightened and want to go home. It's OK. I'm right here with you."

COMMUNICATION PLAN

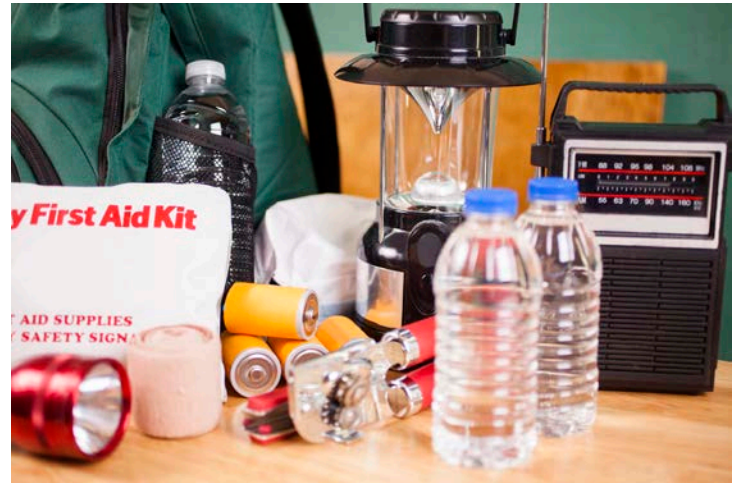
Determine in advance how you will communicate with staff, volunteers and those you serve. If you subscribe to a communications system, please use this system to keep constituents up-to-date about school and parish closings, evacuation and return to work/school protocols. If you do not subscribe to a communications system, maintain a list of email addresses and a calling tree list and designate the appropriate individuals to send emails and/or make phone calls.

In planning for the possibility of an evacuation, designate someone in advance as your out-of-area contact. Plan to keep this contact person informed of your whereabouts; e.g., when you are evacuating, what shelter you are going to, and when you plan to return home.



PREPARING A KIT

In the event of an emergency, it is critical that you have enough supplies together to ensure that basic needs are being met. You will want to prepare a disaster emergency “kit” that serves as a resource for two purposes: 1.) In the event you are told to shelter-in-place and are not able to go to the grocery store, get prescriptions filled, etc.; and 2.) If an evacuation order is issued and you have only 36 – 48 hours to leave your home. In addition to lacking the time to go shopping for the necessary supplies, you will not be able to rely on local stores to keep their shelves stocked during an emergency. It is critical that you gather supplies ahead of time to utilize if homebound or bring with you if you are evacuated. Your kit should include items such as non-perishable food, water, medicine prescriptions, a first-aid kit, cash and toiletries. **For a more complete list, please see the checklist in Appendix D.**



Sample Emergency Kit.

ORDERS TO EVACUATE

Because hurricanes are closely tracked and can be followed for as long as a week before reaching New England, in general residents are given enough warning ahead of time to enable them to take precautionary steps, including evacuation.

How will you know if an evacuation order has been issued? First, it is important to stay tuned to local television and radio stations and, if possible, listen to reports on a NOAA weather alert radio. **All parishes and schools should be equipped with a NOAA weather radio that is stored with a set of backup batteries.** In addition, Ratio Risk will issue Risk Alerts to keep you advised. Alerts will be sent to you via email, unless you specify otherwise; please check email frequently during these times.

Your local Emergency Management Office is the best resource to help you determine the evacuation plans in place for your community, including proposed evacuation routes and locations of shelters. See Appendix H for contact details.

In general, if you meet any of the following criteria, you should plan on being among the first to evacuate:

- Residents of low-lying areas
- Persons living in manufactured housing
- Persons with special needs, including health or mobility-related concerns

SHELTERS

Certain parish facilities and schools within the archdiocese have been designated as shelter areas. However, use of specific shelters will be determined by the actual weather conditions and storm location. If you would like your facility to be considered as a shelter, please contact Leighton Jones, Regional Director for Emergency Services, American Red Cross of Eastern Massachusetts, Tel: (617) 274-5200. The Red Cross will send out a team to conduct a facility survey to determine if your site is suitable as a shelter.



TRANSPORTATION

In the event of an evacuation, if you do not have personal transportation, make plans with relatives, friends or colleagues, or contact your local Emergency Management Office. It is important that you have a means of evacuation that includes the ability to bring your emergency supply kit with you. If you have a vehicle, make certain you keep the fuel tank filled if evacuation seems likely. Gas stations may be closed during an emergency, run out of fuel or be unable to pump gas during power outages. When traveling, be aware of designated evacuation routes. Keep the car radio tuned to an EAS (Emergency Alert System) station.

EAS Stations

State Primary Facility: WBZ Radio, Boston: 1030 AM

Boston State Alternate Facility: WBMX Radio: 104.1 FM

Local Primary Facilities:

Greater Boston WBMX Radio, Boston: 104.1 FM

Southeastern WPLM Radio, Plymouth: 99.1 FM

Cape & Islands WQRC Radio, Barnstable: 99.9 FM

Central WSRS Radio, Worcester: 96.1 FM

Connecticut River Valley WHYN Radio, Springfield: 560 AM; 93.1 FM

Berkshire WBEC Radio, Pittsfield: 1420 AM

MAKING A PLAN FOR PETS

Most shelters will only allow seeing-eye dogs and other service animals. In many communities, SMART (The State of Massachusetts Animal Response Team) may be able to assist at these facilities with animal sheltering accommodations. To be safe, try to make boarding plans in advance for your pet. Put together a kit of necessities, such as collars and leashes, a 3-5 day supply of food and water, a manual can opener, bowls, litter boxes and a week's supply of medications that your pet may be taking.

THINGS TO DO IMMEDIATELY PRIOR TO EVACUATION

When given the order to evacuate, you should do the following prior to evacuation:

- Put your emergency kit in your vehicle or have it ready at the door if someone else is providing transportation.
- Elevate valuable items to high shelves within your dwelling/office.
- Remove papers from lower drawers of desks and filing cabinets and place them in plastic bags or containers on top of cabinets.
- Prepare to bring vital documents, such as sacramental registers, with you.
- Safely shut off the electricity, gas and water supplies at main switches and valves.
- Close and lock all windows and doors.
- Close storm shutters or board up windows with pre-drilled plywood.
- Move unanchored items indoors (lawn furniture, hanging plants, signs, trash cans, etc.).
- Use plywood to protect glass showcases.
- Place sandbags in spaces where water can enter.





- Change voicemail messages and update website (if applicable) to reflect the close of business.
- Monitor the media. Stay tuned to your Emergency Alert System (EAS) station.
- Check with neighbors to see if they need assistance. Offer to share transportation.
- Let others (especially your out-of-area contact) know where you are going.
- **Do not call your local fire or police departments (911) for information.** Emergency workers will need the lines open for emergency use only. If you need special help, call your local Emergency Management Office or Mass 2-1-1, which is available 24/7 to respond to your questions.

SHELTER-IN-PLACE

Shelter-in-place is a standard protective action utilized in emergency management. It is used most often during an accident or event in which hazardous materials have been released into the atmosphere, but also during dangerous conditions, when it is best to be indoors and not outside or on the road.

When a hurricane is approaching, state or local public safety officials may instruct you to shelter-in-place. As with evacuations, you may be alerted in a variety of ways. Learn what methods are utilized in your community.

Methods used to provide shelter-in-place instruction could include:

- Outdoor sirens or horns
- The Emergency Alert System (EAS) information provided on TV/radio
- NOAA Weather Alert Radio
- ‘All Call’, ‘Reverse 911’ or ‘Code Red’ – one of a number of automated telephoning system for sending recorded messages
- Commercial news media
- Residential Route Alerting, which dispatches public safety vehicles through neighborhoods announcing messages with public address systems
- U.S. Coast Guard Marine Broadcast

The following are steps to take when instructed to shelter-in-place and are not to be completed ahead of time:

- If instructed, you should immediately go indoors.
- Close and lock all doors and windows. Locking is preferred since it generally ensures that the door or window is shut tight.
- Close drapes, blinds and window shades.
- Protect windows with pre-drilled plywood sheets.
- Go to a small interior room with no windows and the fewest number of doors.
- Take your disaster kit to that location.
- Keep pets indoors and gather additional food and water supplies for them.
- Continue to monitor your Emergency Alert Station and other media for official messages and instructions.
- Stay inside until officials say otherwise.
- If you are in your vehicle and are advised to shelter-in-place, and are very close to your home, office or a public building, go there immediately.





TORNADO WARNING

Tornadoes can occur with little or no warning. If a tornado warning is issued, it means that a tornado has been sighted in the area or is indicated by radar – take shelter immediately. Try to find shelter underground, if possible. If an area underground is not available, then find a small interior room on the lowest floor without windows. FEMA warns that auditoriums, cafeterias and gymnasiums that are covered with a flat, wide-span roof are not considered safe. In addition, lightweight modular offices or mobile home-size buildings offer no protection from tornadoes – plan to evacuate these structures immediately. Once in the shelter, occupants should protect their heads with their arms and crouch down.

RETURNING AFTER AN EVACUATION

Prior to evacuation, determine who among the staff members will be the first to return to the parish office or school after the hurricane to survey damages and make sure the facility is safe for others to return. Be sure to return during the daytime to avoid the need for lights. If returning at night, use a flashlight but do not use candles in case of a gas leak. Watch for debris on the road while driving. Take care when entering a structure that has been damaged. If possible, listen to the radio or contact authorities to find out if sewage lines are intact before turning on the water or using the toilet. If water supplies become contaminated, the health department will issue a boil water order immediately after a hurricane passes. Be aware of possible structural, electrical or gas-leak hazards. Keep in mind that downed power lines may result in loss of power and an interruption in telephone communications. Inform your out-of-area contact of your status.

GAS LEAKS

If you smell gas or suspect a leak, turn off the main gas valve, open all windows and leave the building immediately. Notify the gas company, the police, fire departments or State Fire Marshal's office (telephone: 978-567-3111) and do not turn on the lights, light matches, smoke or do anything that could cause a spark. Do not return until you are told it is safe to do so.

ELECTRICAL DAMAGE

If you see frayed wiring, notice sparks when you restore power, or smell an odor of something burning, immediately shut off the electrical system at the main circuit breaker and notify your utility company. All electrical equipment and appliances must be completely dry before returning them to service. Have a certified electrician check these items if there is any question.

GENERATORS

It is against the law and a violation of electrical codes to connect generators to your dwelling's electrical circuits without the approved automatic-interrupt devices. If a generator is plugged in when electrical service is restored, a major fire may result. In addition, the improper connection of a generator to your dwelling's electrical circuits may endanger line workers helping to restore power in your area. If you wish to hard-wire a generator to your building, hire a licensed electrician to do the installation. Make sure the generator is equipped with an approved cut-off switch that will automatically disconnect the home from the power grid when the generator is being used.

During power outages, many fatalities result from carbon monoxide poisoning. To avoid carbon monoxide poisoning, never use a generator indoors or in an attached garage. Place the generator outside where exhaust fumes will not enter enclosed spaces and away from windows or any air-intakes to your building.



CHAINSAWS

The improper use of chainsaws is a common cause of injury after hurricanes. Learn proper safety procedures and operating instructions before operating any gas-powered or electric chainsaw. Use extreme caution to avoid electrical shock. As with any power equipment, wear a safety face shield or eyeglasses and gloves.

DOWNED POWER LINES

If power lines are lying on or dangling near the ground, **DO NOT** touch them. Notify your utility company as soon as possible that the lines have been damaged, or that the power lines are down. Do not attempt to move or repair the power lines. Do not drive through standing water if downed power lines are in the water. If a power line falls across your car while you are driving, continue to drive away from the line. If the engine stalls, do not turn off the ignition. Stay in your car and wait for emergency personnel. Do not allow anyone other than emergency personnel to approach your vehicle.

CHEMICAL HAZARDS

Be aware of potential chemical hazards you may encounter upon your return. Floodwaters and high winds may have moved or buried hazardous chemical containers of solvents or other industrial chemicals.

Contact your local fire department about inspecting and removing hazardous chemical containers. Avoid inhaling chemical fumes.

If any propane tanks are discovered, do not attempt to move them yourself. These represent a very real danger of fire or explosion, and if any are found, the fire department, police, or your State Fire Marshal's office should be contacted immediately.

See Appendix G for a checklist from the Red Cross titled, "Returning Home After a Hurricane or Flood."

REPORTING A CLAIM

Immediately contact your Claims Manager at 781-664-3990, or go to our website and fill out a claims form:

https://rcab.formstack.com/forms/springfield_property_claim





GLOSSARY OF TERMS

ADVISORY - Advisories are issued for weather situations that cause significant inconveniences but do not meet warning criteria and, if caution is not exercised, could lead to life-threatening situations. Advisories are issued for significant events that are occurring, are imminent, or have a very high probability of occurrence.

HURRICANE WARNING - An announcement that hurricane conditions (sustained winds of 74 mph or higher) are expected somewhere within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds.

HURRICANE WATCH - An announcement that hurricane conditions (sustained winds of 74 mph or higher) are possible within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours in advance of the anticipated onset of tropical-storm-force winds.

MAJOR HURRICANE - A hurricane that is classified as Category 3 or higher.

SAFFIR-SIMPSON HURRICANE WIND SCALE – A one-to-five categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity. See **Appendix A** for more details.

STORM SURGE - An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic high tide from the observed storm tide.

STORM TIDE - The actual level of seawater resulting from the astronomic tide combined with the storm surge.

APPENDIX A: SAFFIR-SIMPSON HURRICANE SCALE



CATEGORY	WINDS (1-min sustained winds in mph, kt, and km/h)	SUMMARY	PEOPLE, LIVESTOCK, AND PETS	MOBILE HOMES	FRAME HOMES	APARTMENTS, SHOPPING CENTERS, AND INDUSTRIAL BUILDINGS	HIGH-RISE WINDOWS AND GLASS	SIGNAGE, FENCES, AND CANOPIES	TREES	POWER AND WATER	EXAMPLE
1	74-95 mph. 64-82 kt. 119-153 km/h.	Very dangerous winds will produce some damage.	People, livestock, and pets struck by flying or falling debris could be injured or killed.	Older (mainly pre-1994 construction) mobile homes could be destroyed, especially if they are not anchored properly as they tend to shift or roll of their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding, as well as damage to carports, sun room, or lanais.	Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break o f struck by flying debris. Masonry chimneys can be toppled. Well- constructed frame homes could have damage to roof singles, vinyl siding, soffit panels, and gutters. Failure of aluminum , screened-in, swimming pool enclosures can occur.	Some apartment building and shopping center roof coverings could be partially removed. Industrial buildings can lose roofing and siding especially from windward corners, rake, and eaves. Failures to overhead doors and unprotected windows will be common.	Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm.	There will be occasional damage to commercial signage, fences, and canopies.	Large branches of tress will snap and shallow rooted tress can be toppled.	Extensive damage to power lines and poles will likely result in power outages that could last a few to several days.	Hurricane Dolly (2008) is an example of a hurricane that brought Category 1 winds and impacts to South Padre Island, Texas.



APPENDIX A: SAFFIR-SIMPSON HURRICANE SCALE

CATEGORY	WINDS (1-min sustained winds in mph, kt, and km/h)	SUMMARY	PEOPLE, LIVESTOCK, AND PETS	MOBILE HOMES	FRAME HOMES	APARTMENTS, SHOPPING CENTERS, AND INDUSTRIAL BUILDINGS	HIGH-RISE WINDOWS AND GLASS	SIGNAGE, FENCES, AND CANOPIES	TREES	POWER AND WATER	EXAMPLE
2	96-110 mph. 83-95 kt. 154-177 km/h.	Extremely dangerous winds will cause extensive damage.	There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris.	Older (mainly pre-1994 construction) mobile homes have a very high chance of being destroyed and the flying debris generated can shred nearby mobile homes. Newer mobile homes can also be destroyed.	Poorly constructed frame homes have a high chance of having their roof structures removed especially if they are not anchored properly. Unprotected windows will have a high probability of being broken by flying debris. Well- constructed frame homes could sustain major roof and siding damage. Failure of aluminum, screened-in, swimming pool enclosures will be common.	There will be a substantial percentage of roof and siding damage to apartment buildings and industrial buildings. Unreinforced masonry walls collapse.	Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm.	Commercial signage, fences, and canopies will be damaged and often destroyed.	Many shallowly rooted trees will be snapped or uprooted and block numerous roads.	Near-total power loss is expected with outages that could last from several days to weeks. Potable water could become scarce as filtration systems begin to fail.	Hurricane Frances (2004) is an example of a hurricane that brought Category 2 winds and impacts to coastal portions of Port St. Lucie, Florida with Category 1 conditions experienced elsewhere in the city.



APPENDIX A: SAFFIR-SIMPSON HURRICANE SCALE

CATEGORY	WINDS (1-min sustained winds in mph, kt, and km/h)	SUMMARY	PEOPLE, LIVESTOCK, AND PETS	MOBILE HOMES	FRAME HOMES	APARTMENTS, SHOPPING CENTERS, AND INDUSTRIAL BUILDINGS	HIGH-RISE WINDOWS AND GLASS	SIGNAGE, FENCES, AND CANOPIES	TREES	POWER AND WATER	EXAMPLE
3	111-129 mph. 96-112 kt. 178-208 km/h.	Devastating damage will occur.	There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris.	Nearly all older (pre- 1994) mobile homes will be destroyed. Most newer mobile homes will sustain severe damage with potential for complete roof failure and wall collapse.	Poorly constructed frame homes can be destroyed by the removal of the roof and exterior walls. Unprotected windows will be broken by flying debris. Well- built frame homes can experience major damage involving the removal of roof decking and gable ends.	There will be a high percentage of roof covering and siding damage to apartment buildings and industrial buildings. Isolated structural damage to wood or steel framing can occur. Complete failure of older metal buildings is possible, and older unreinforced masonry buildings can collapse.	Numerous windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.	Most commercial signage, fences, and canopies will be destroyed.	Many trees will be snapped or uprooted, blocking numerous roads.	Electricity and water will be unavailable for several days to a few weeks after the storm passes.	Hurricane Ivan (2004) is an example of a hurricane that brought Category 3 winds and impacts to coastal portions of Gulf Shores, Alabama with Category 2 conditions experienced elsewhere in this city.

APPENDIX A: SAFFIR-SIMPSON HURRICANE SCALE



Diocese of Boston

CATEGORY	WINDS (1-min sustained winds in mph, kt, and km/h)	SUMMARY	PEOPLE, LIVESTOCK, AND PETS	MOBILE HOMES	FRAME HOMES	APARTMENTS, SHOPPING CENTERS, AND INDUSTRIAL BUILDINGS	HIGH-RISE WINDOWS AND GLASS	SIGNAGE, FENCES, AND CANOPIES	TREES	POWER AND WATER	EXAMPLE
4	130-156 mph. 113-136 kt. 209-251 km/h.	Catastrophic damage will occur.	There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris.	Nearly all older (pre-1994) mobile homes will be destroyed. A high percentage of newer mobile homes will also be destroyed.	Poorly constructed homes will sustain complete collapse of all walls as well as the loss of the roof structure. Well-built homes also can sustain sever damage with loss of most of the roof structure and/or some exterior walls. Extensive damage to roof coverings, windows, and doors will occur. Large amounts of wind borne debris will be lofted into the air. Wind borne debris damage will break most unprotected windows and penetrate some protected windows.	There will be a high percentage of structural damage to the top floors of apartment buildings. Steel frames in older industrial buildings can collapse. There will be a high percentage of collapse to older unreinforced masonry buildings.	Most windows will be blown out of high- rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.	Nearly all commercial signage, and fences, and canopies will be destroyed.	Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas.	Power outages will last for weeks to possible months. Long- term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.	Hurricane Charley (2004) is an example of a hurricane that brought Category 4 winds and impacts to coastal portions of Punta Gorda, Florida with Category 3 conditions experienced elsewhere in the city.

APPENDIX A: SAFFIR-SIMPSON HURRICANE SCALE

CATEGORY	WINDS (1-min sustained winds in mph, kt, and km/h)	SUMMARY	PEOPLE, LIVESTOCK, AND PETS	MOBILE HOMES	FRAME HOMES	APARTMENTS, SHOPPING CENTERS, AND INDUSTRIAL BUILDINGS	HIGH-RISE WINDOWS AND GLASS	SIGNAGE, FENCES, AND CANOPIES	TREES	POWER AND WATER	EXAMPLE
5	157 mph or higher. 137 kt or higher. 252 km/h or higher.	Catastrophic damage will occur.	People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in mobile homes or framed homes.	Almost complete destruction of all mobile homes will occur, regardless of age or construction.	A high percentage of frame homes will be destroyed, with total roof failure and wall collapses. Extensive damage to roof covers, windows, and doors will occur. Large amounts of wind borne debris will be lofted into the air. Wind borne debris damage will occur to nearly all unprotected windows and many protected windows.	Significant damage to wood roof commercial buildings will occur due to loos of roof sheathing. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. A high percentage of industrial buildings and low-rise apartment buildings will be destroyed.	Nearly all windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm.	Nearly all commercial signage, and fences, and canopies will be destroyed.	Nearly all trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas.	Power outages will last for weeks to possibly months. Long- term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.	Hurricane Andrew (1992) is an example of a hurricane that brought Category 5 winds and impacts to coastal portions of Cutler Ridge, Florida with Category 4 conditions experienced in south Miami- Dade County.

APPENDIX B: NEW ENGLAND HURRICANES OF NOTE

Source: <http://www.mass.gov/>

The Great Colonial Hurricane of 1635 - August 25, 1635. This was the first historical record of an intense hurricane striking New England. The highest winds have been estimated at Category 3 or greater, with winds of 115-plus mph. The storm's eye passed between Boston and Plymouth causing at least 46 casualties. A 20-foot tidal surge was reported in Boston, ruining farms throughout the area. Reports from Governor William Bradford describing the drowning of dozens of Native Americans, the toppling of thousands of trees and the flattening of houses suggest that this storm possessed even greater intensity than the storms of 1815 and 1938.

The Great September Gale of 1815 - September 23, 1815. This was the first major hurricane to impact New England in 180 years. It initiated in the West Indies, growing to a Category 3 with winds of 135 mph. After crossing Long Island, New York, the storm came ashore at Saybrook, Connecticut, funneling an 11-foot storm surge up Narragansett Bay. There, it destroyed 500 houses, 35 ships and flooded Providence, Rhode Island. Impacting Central and Coastal Massachusetts, 'The Great Gale' destroyed the bridge over the Neponset River, connecting Dorchester and Milton, Massachusetts. At least 38 deaths have been attributed to this disaster.

The September Gale of 1869 - September 8, 1869. A Category 3, this 'September Gale' was first observed in the Bahamas. It ultimately made landfall in Rhode Island just west of Buzzards Bay, dissipating in Northern Maine. This storm was very compact, but intense. It was reported to have been only 60 miles wide, but it caused extensive damage in Rhode Island, Massachusetts and Maine. Fortunately, its arrival coincided with low tide lessening the storm surge and resulting damage.

The Great New England Hurricane of 1938 - September 21, 1938. This Category 5, which has also been dubbed "The Long Island Express", was first detected in the Tropical Atlantic. As it slowly moved northward, it suddenly accelerated to a forward motion of 60 to 70 mph, when it was 100 miles east of North Carolina. Without warning, it made landfall as a Category 3, during an astronomically high tide along Long Island, New York and the Connecticut coast. The Blue Hill Observatory, outside of Boston, measured sustained winds of 121 mph, with gusts of 183 mph. Storm surges of 10 to 12 feet inundated portions of the coast from Long Island to Southeastern Massachusetts, most notably in Narragansett Bay and Buzzards Bay. Heavy rains of 3" to 6" produced severe flooding, particularly in areas of Western Massachusetts and along the Connecticut River. Downtown Providence, Rhode Island was impacted by a 20-foot storm surge. Sections of the Towns of Falmouth and Truro on Cape Cod were under 8 feet of water. The widespread destruction resulting from this storm included 600 deaths and 1,700 injuries. Over \$400 million in damage occurred, including 9,000 homes and businesses lost and 15,000 damaged. Damage to the Southern New England fishing fleet was catastrophic, as over 6,000 vessels were either destroyed or severely damaged.

The Great Atlantic Hurricane of 1944 - September 14-15, 1944. Sometimes compared to the Great Hurricane of 1938, this storm was first detected northeast of the Lesser Antilles. From there, it hugged the United States coast, crossing Long Island, New York, the Rhode Island Coast, emerged into Massachusetts Bay and impacted Maine. With 140 mph winds, this Category 4, produced hurricane force winds over a diameter of 600 miles causing over \$100 million damage. 70-foot high waves were also reported. Up to 11" of rain fell in areas of New England. 390 deaths, mostly at sea, were attributed to this hurricane. It wreaked havoc on World War II shipping, sinking a U.S. Navy destroyer and minesweeper, as well as two U.S. Coast Guard cutters.

Hurricane Dog - September 11-12, 1950. A strong Category 5, Hurricane Dog reached a peak intensity of 185 mph. First observed east of the Lesser Antilles on August 30th, this was a major hurricane that never actually made landfall, passing within 200 miles of Cape Cod. However, it was responsible for the deaths of at least a dozen fishermen off the New England coast. It also caused about \$3 million damage. To this day, it retains the record for the longest continuous duration for a Category 5 Atlantic Hurricane of 60 hours, from September 5th through September 8th. 'Dog' also fluctuated between Category 4 & 5 strength on four different occasions, which is also a record.

Hurricane Carol - August 31, 1954. This compact, but powerful Category 2 battered New England, killing 68. With 100 mph winds, gusting up to 135mph, Carol caused over \$461 million in damage, destroying 4,000 homes, 3,500 cars, and over 3,000 boats. This was arguably the most destructive storm to hit Southern New England since 1938. It formed as a tropical storm near the Bahamas, making brief landfall along the Outer Banks of North Carolina. The storm passed over Long Island, through Central New England into Canada, bringing a storm surge of 14.4 feet to Narragansett Bay and New Bedford Harbor. Over 6" of rain fell. Water depths reached 12 feet in downtown Providence, Rhode Island. Some consider Carol the worst storm in the history of Cape Cod. All of Rhode Island, much of Eastern Connecticut, and much of Eastern Massachusetts lost power, with a 95% loss of telephone service. The name Carol has been retired.

APPENDIX B: NEW ENGLAND HURRICANES OF NOTE

Source: <http://www.mass.gov/>

Hurricane Edna - September 11, 1954. Edna arrived right on the heels of Hurricane Carol. It formed off of Barbados, reaching Category 3 strength at the Outer Banks of North Carolina, with its highest winds of 120 mph. Before striking New England, its eye split into two different ones, up to 60 miles apart at times, moving over Cape Cod & the Islands where peak gusts were recorded at 120 mph. Its eastern track, which resulted in heavy rain and major inland flooding, adding 5" to 7" of rain to Carol's previous 6". The storm was responsible for 29 deaths and \$40 million damage. Ultimately, it made landfall near Eastport, Maine, becoming one of Maine's worst-ever hurricanes. The name Edna has been retired.

Hurricane Diane - August 17-19, 1955. Born in the tropical Atlantic, this storm reached Category 3 status as it followed the path of Hurricane Connie of 5 days earlier. Maximum winds were recorded at 120 mph. Although it weakened to a Tropical Storm as it reached the Southern New England coast, Diane dropped heavy rain of 10" to 20", setting flood records throughout the region. The storm was blamed for between 185 and 200 deaths. The \$832 million damage qualified it as the most costly hurricane in U.S. history until Hurricane Betsy in 1965. The name Diane has been retired.

Hurricane Donna - September 12, 1960. This Category 5 Cape Verde-type hurricane impacted most of the Caribbean Islands and every state on the U.S. Eastern seaboard. It recorded 160 mph winds with gusts up to 200 mph. Donna holds the record for retaining 'major hurricane' status of Category 3 or better in the Atlantic basin for the longest period of time. From September 2-11, it sustained winds of 115 mph as it roamed the Atlantic for 17 days. It is the only one on record to produce hurricane-force winds in Florida, the Mid-Atlantic States and New England. Donna hit New England in Southeast Connecticut with sustained winds of 100 mph, gusting to 125-130 mph, cutting diagonally through the region to Maine. It produced pockets of 4" to 8" of rain as well as 5- to 10-foot storm surges. The storm ultimately killed 364, and caused over \$500 million in damage. The name Donna has been retired.

Hurricane Gloria - September 27, 1985. Hurricane Gloria was a powerful Category 4 Cape Verde-type storm that prowled the Atlantic for 13 days, with highest winds of 145 mph, making landfall at Milford, Connecticut. In spite of arriving during low tide, it caused severe beach erosion along the New England coast, as well as the loss of many piers and coastal roads. There was a moderate storm surge of 6.8 feet in New Bedford, Massachusetts. The storm left over 2,000,000 people without power. It dropped up to 6" of rain in Massachusetts, causing many flooding issues in the region. Although casualties were relatively low with 8 deaths, damage reached \$900 million. The name Gloria has been retired.

Hurricane Bob - August 19, 1991. Formed east of the Bahamas, Hurricane Bob made landfall in New England near New Bedford, Massachusetts with 115 mph winds, cutting a path across Southeastern Massachusetts towards the Gulf of Maine. Peak winds of 125 mph were recorded in the Towns of Brewster and Truro on Cape Cod. Over 60% of the residents of Southeastern Massachusetts and Southeastern Rhode Island lost power. There were 4 different reports of tornadoes as Bob came ashore. Buzzards Bay saw a 10 to 15-foot storm surge. A number of south-facing beaches on the islands of Nantucket and Martha's Vineyard lost 50 feet of beach to erosion. Bob was blamed for 18 storm-related deaths. The damage total for Southern New England was set at \$1 billion. The name Bob has been retired.

Hurricane Irene - August 22, 2011. Irene became a hurricane on August 22 and intensified to a Category 3 hurricane on the Saffir-Simpson Hurricane Wind Scale on August 24 while centered between Mayaguana and Grand Inagua in the Bahamas. It gradually weakened after crossing the Bahamas, making landfall in North Carolina on August 27 as a Category 1 hurricane. Irene made another landfall the next day as a tropical storm very near Atlantic City, New Jersey. The center moved over Coney Island and Manhattan, New York, the same day. Irene caused widespread damage across a large portion of the eastern United States as it moved north-northeastward, bringing significant effects from the mid-Atlantic through New England. The most severe impact of Irene was catastrophic inland flooding in New Jersey, New York, Massachusetts and Vermont. The name Irene has since been retired.

Hurricane Sandy – October 29 – 30, 2012. This storm affected Southern New England with its outer bands producing heavy storm surge, winds, and rainfall before the storm's landfall in New Jersey. Sandy devastated the Jersey Shore, New York City, parts of Long Island and the Connecticut and Rhode Island coastlines. Flooding and power outages (roughly nine million customers total) lasted several days, while thousands of trees, telephone poles and traffic light stanchions were snapped. A total of approximately \$71.4 billion in property damage was left in Sandy's wake after it made landfall and its center went over Pennsylvania and New York. Sandy killed 5 people in New England (4 in Connecticut and 1 in New Hampshire).

APPENDIX D: HURRICANE EMERGENCY KIT CHECKLIST

EATING AND DRINKING

- ☐ Non-perishable food (3-days)
- ☐ Water (Gallon per person/day)
- ☐ Can opener
- ☐ Utensils

FOR PRIESTS

- ☐ Blessed Sacrament
- ☐ Sacred Vessels
- ☐ Sacramental registers
- ☐ Payroll information

MEDICAL PACK

- ☐ Extra prescription medication
- ☐ First-Aid kit
- ☐ Hearing aids
- ☐ Eyeglasses and prescription
- ☐ Mosquito repellent

NOTES

[illegible]

ELECTRONIC

- ☐ Cell phone charger
- ☐ Battery-operated radio
- ☐ Extra batteries
- ☐ Flashlights

OTHER

- ☐ Bedding/sleeping bags
- ☐ Duct tape
- ☐ Tarp
- ☐ Rope
- ☐ Toilet Paper
- ☐ Toiletries
- ☐ Extra set of keys
- ☐ Sunglasses
- ☐ Money, checks or credit cards
- ☐ Contact details for out-of-area contact person
- ☐ Important account passwords

APPENDIX E: HURRICANE PREPARATION CHECKLIST

MAINTENANCE CHECKLIST

- ☐ Check gutters and drains - ensure they are free of debris or any other type of obstruction.
- ☐ Remove outside furniture and anything not anchored down.
- ☐ Close and lock doors to any storage sheds.
- ☐ Remove any dead or damaged branches.
- ☐ Remove satellite rooftop dishes.
- ☐ Close and if possible lock all doors and windows.
- ☐ Shutter windows or install plywood covers.
- ☐ Unplug computers and other office equipment from outlets.
- ☐ Turn refrigerator and freezer to the coldest setting; keep closed as much as possible so that food will last longer if power goes out.
- ☐ Turn off propane tanks and unplug small appliances.
- ☐ Fill your car's gas tank.

GENERAL OFFICE CHECKLIST

- ☐ File papers and books.
- ☐ Move important files to top shelves.
- ☐ Be sure to back up files electronically if backups are not taken automatically.
- ☐ If putting sensitive information on a thumb drive, make sure to password-protect it.

EMERGENCY KIT

- ☐ If sheltering in place, bring emergency kit to area of dwelling where you will be staying.
- ☐ If being evacuated, keep kit near front door and remember to bring it with you.

BE SURE TO LISTEN TO A NOAA WEATHER RADIO FOR CRITICAL INFORMATION FROM THE NATIONAL WEATHER SERVICE.

KEEP YOUR OUT-OF-STATE CONTACT INFORMED OF YOUR PLANS.

APPENDIX F: FEMA FACT SHEET ON BRACE GABLE END ROOF FRAMING

PROTECTING YOUR PROPERTY FROM HIGH WINDS

Gable end roofs are more susceptible to damage from high winds than hip or flat roofs. The gable end presents a large, flat obstacle to the wind and receives its full force. If the framing of the gable end and the entire roof is not adequately braced to resist the wind, the roof can fail. Roof failures, especially in unbraced gable roofs, are a common cause of major damage to structures and their contents in high winds.

If your property has a gable roof, check to see whether the roof framing is braced. The top figure shows a cutaway view of an unbraced gable end roof. This is a truss roof, but some gable end roofs are constructed with rafters rather than trusses. Both types should be braced as shown in the bottom figure. If you are unsure whether your gable end roof is adequately braced, check with your local building department. After inspecting your roof framing, a building official can tell you whether bracing is required and if so, how it should be added.

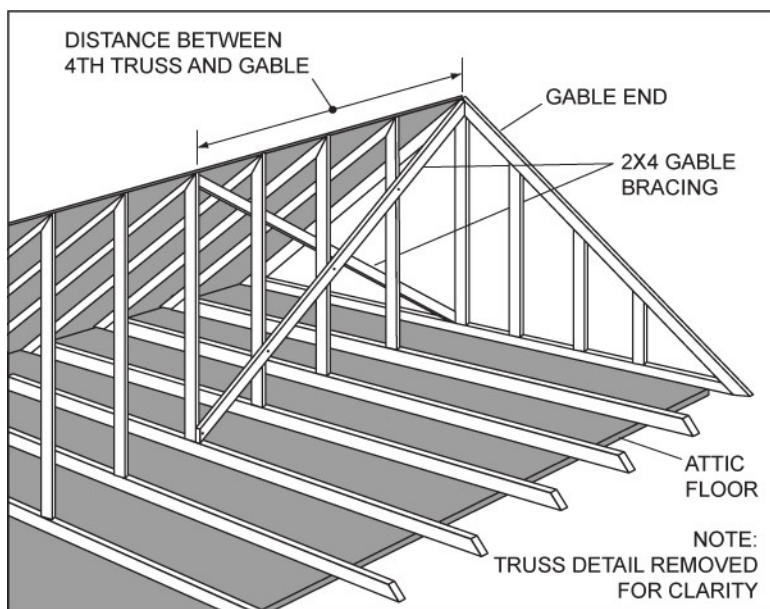
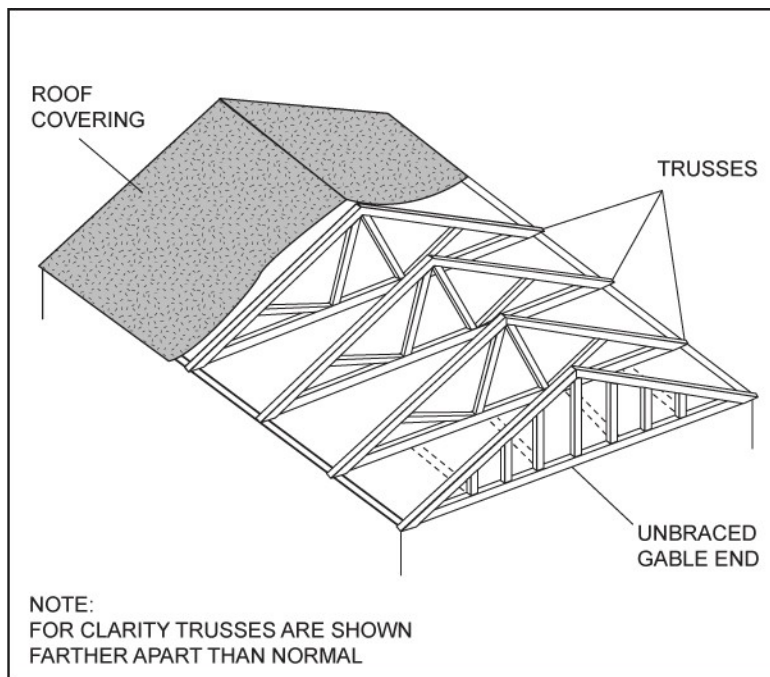
BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

- Helps to prevent roof failure, which can lead to major damage of a structure and its contents
- Helps to prevent injuries to occupants

TIPS

Keep these points in mind if you have bracing added to a gable end roof:

- ✓ Bracing can be added fairly easily, but you should have a contractor perform the work to make sure that the bracing is properly designed and attached.
- ✓ If you have a building official inspect your roof framing, ask about other changes you may be able to make to your property to protect it from high winds.



APPENDIX G: RETURNING HOME AFTER A HURRICANE CHECKLIST (RED CROSS)

Be Red Cross Ready

Returning Home After a Hurricane or Flood

Preparing to return home after evacuating will keep you safer while inspecting and cleaning up the damage to your home. Before traveling, ensure local officials have declared that it's safe to enter your community and that you have the supplies you will need. Follow the suggestions below for returning to, inspecting and cleaning your home.

Items to Take When Returning Home:

- ☐ Government-issued photo ID and proof of address
- ☐ Important phone numbers
- ☐ Bottled water and non-perishable foods
- ☐ First aid kit
- ☐ Cleanser/ hand cleaning gel for personal use
- ☐ Hygiene products and toilet paper
- ☐ Insect repellent and sunscreen
- ☐ Long sleeved shirts, long pants, sturdy waterproof boots and work gloves
- ☐ Flashlight, portable radio and extra batteries
- ☐ Cameras for photos of damage for insurance claims

Before Returning



- ☐ Find out if it is safe to enter your community or neighborhood. Follow the advice of your local authorities.
- ☐ Carry plenty of cash. ATMs may not work and stores may not be able to accept credit or debit cards.
- ☐ Bring supplies such as flashlights, batteries, bottled water and non-perishable foods in case utilities are out.

First Inspection



- ☐ If possible, leave children and pets with a relative or friend. If not, keep them away from hazards and floodwater.
- ☐ Beware of rodents, snakes, insects and other animals that may be on your property or in your home.
- ☐ Before entering your home, look outside for damaged power lines, gas lines, foundation cracks and other exterior damage. It may be too dangerous to enter the home.

Cleaning Your Home



- ☐ Wear protective clothing, including rubber gloves and rubber boots.
- ☐ Be careful when moving furnishings or debris since they may be water logged and heavier.
- ☐ Throw out all food, beverages and medicine exposed to flood waters and mud, including canned goods and containers with food or liquid that have been sealed shut. When in doubt, throw it out.

- ☐ Create back-up communication plans with family and friends in case you are unable to call from affected areas.
- ☐ Plan for delays when traveling. Bring extra food, water, pillows, blankets and other items that will make the trip more comfortable. Keep the fuel tank of your vehicle as full as possible in case gas stations are crowded, out of fuel or closed.
- ☐ Carry a map to help you route around heavy traffic or impassable roads.
- ☐ Find out if local medical facilities are open and if emergency services are functioning again. Do NOT call 9-1-1 or the local emergency number to do this.
- ☐ Understand that recovery takes time. Focus on the positive and have patience. Others will have similar frustrations.

- ☐ Smell for gas. If you smell natural gas or propane, or hear a hissing noise, leave immediately and contact the fire department.
- ☐ If your home was flooded, assume it is contaminated with mold. Mold increases health risks for those with asthma, allergies or other breathing conditions.
- ☐ Open doors and windows. Let the house air out before staying inside for any length of time if the house was closed for more than 48 hours.
- ☐ Turn the main electrical power and water systems off until you or a professional can ensure that they are safe. NEVER turn the power on or off, or use an electrical tool or appliance while standing in water.
- ☐ Check the ceiling and floor for signs of sagging. Water may be trapped in the ceiling or floors may be unsafe to walk on.

Using Generators Safely

- ☐ When using a portable generator, connect the equipment you want to power directly to the outlets on the generator. Do not connect a portable generator to a home's electrical system.
- ☐ If you are considering getting a generator, get advice from a professional, such as an electrician. Make sure that the generator you purchase is rated for the power that you think you will need.

- ☐ Some cleaning solutions can cause toxic fumes and other hazards if mixed together. If you smell a strong odor or your eyes water from the fumes or mixed chemicals, open a window and get out of your home.
- ☐ Throw out items that absorb water and cannot be cleaned or disinfected (e.g. mattresses, carpeting, cosmetics, stuffed animals and baby toys).
- ☐ Remove all drywall and insulation that has been in contact with flood waters.
- ☐ Clean hard surfaces (e.g. flooring, countertops and appliances) thoroughly with hot water and soap or a detergent.
- ☐ Return to as many personal and family routines as possible.

Caution:

Carbon Monoxide Kills

- ☐ Never use a generator, grill, camp stove or other gasoline, propane, natural gas or charcoal-burning devices inside a home, garage, basement, crawlspace, or any partially enclosed area. Locate unit away from doors, windows and vents that could allow carbon monoxide to come indoors.
- ☐ The primary hazards to avoid when using alternate sources for electricity, heating or cooking are carbon monoxide (CO) poisoning, electric shock and fire.

Let Your Family Know You're Safe

If your community has experienced a flood, or any disaster, register on the American Red Cross Safe and Well Web site, available through [RedCross.org](https://www.redcross.org), to let your family and friends know about your welfare. You may also call **1-866-GET-INFO** to register yourself and your family.



For more information about returning home after a disaster, visit [RedCross.org](https://www.redcross.org).

APPENDIX H: RESOURCES

For the tech-savvy, The National Hurricane Center has a Facebook page and a twitter feed. The **NOAA NWS National Hurricane Center** page provides updates about the NHC outreach and education campaign and other items that might be of interest to the public throughout the year. During the hurricane season, the site contains a daily tropical weather update for both the Atlantic and eastern North Pacific basins, as well as alerts regarding any tropical cyclone activity as needed.

The NHC Facebook page is found at: www.facebook.com/US.NOAA.NationalHurricaneCenter.gov

NATIONAL HURRICANE CENTER TWITTER PAGE

www.nhc.noaa.gov/twitter.shtml

NHC has two Twitter accounts. The one for the Atlantic basin is: @NHC_Atlantic

NATIONAL HURRICANE CENTER WEBSITE

www.hurricanes.gov

MASSACHUSETTS EMERGENCY MANAGEMENT AGENCY

www.mass.gov/eopss/agencies/mema/

FEMA BOSTON OFFICE

Tel: (617) 223-9540

MASSACHUSETTS EMERGENCY MANAGEMENT AGENCY

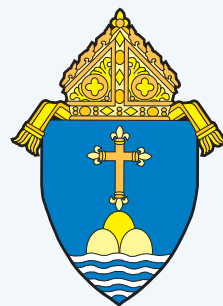
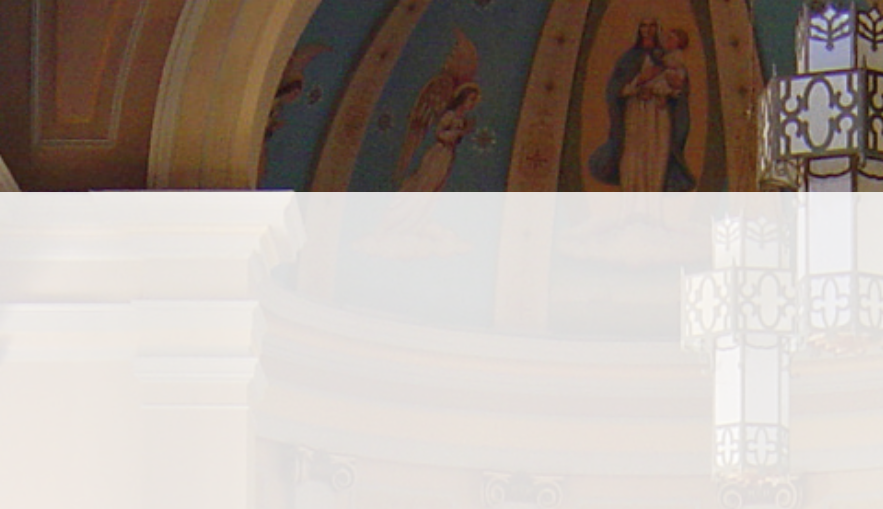
Tel: (508) 820-2000

STATE FIRE MARSHAL'S OFFICE

Tel: (978)-567-3111

NOTES

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