

Hurricane Incident Annex

Introduction

- **Overview**

The official Hurricane Season starts June 1 and ends November 30; a period of 6 months. These major storms pose a continuing threat to Mississippi in the form of high winds, tornadoes, tidal surge, and major flooding during landfall. Damage from wind, tornado, and water can extend inland along the residual tracks of the storm. (Refer to the Catastrophic Incident Annex)

The 2005 Hurricane Katrina was the sixth-strongest Atlantic Hurricane ever recorded. The storm surge from Katrina caused catastrophic damage along the coastlines of Louisiana, Mississippi, and Alabama. Hurricane Katrina's front-right quadrant contained the storm's strongest winds. The winds pushed water from the Gulf of Mexico into a storm surge of more than 20 feet (6 meters) at the point where Katrina made landfall in Mississippi. Based on some accounts, a 30-foot storm surge came ashore wiping out 90 percent of buildings along the Biloxi-Gulfport coastline. Hancock County suffered severe damages in two communities, Waveland and Bay St. Louis. Harrison County was hit particularly hard by the hurricane and the storm surge. Its two major coastal cities, Biloxi and Gulfport, suffered severe damages, and many casualties were reported. Wind damage was reported well inland, impeding relief efforts.

- **Purpose**

This document provides guidance about hurricane preparedness and response for the threat or landfall of a hurricane to the State of Mississippi. The plan is designed for use at the State level and for agencies that support the Emergency Support Functions (ESFs). Primary and support ESF agencies can use the plan for development of Standard Operating Procedures (SOPs). The plan also addresses the unique needs of hurricane preparedness and response, especially the actions required for evacuation and sheltering.

- **Scope**

Mississippi has three coastal counties, Jackson, Harrison, and Hancock, which will feel the effects of storm surge from a hurricane. Mississippi's Inland High Risk counties, George, Stone, and Pearl River, are relatively close to the coastline and could be affected by the initial impact of inland winds from a Gulf of Mexico storm.

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Situations and Assumptions

Situation

- Hurricanes pose the greatest threat to Mississippi in terms of scope and magnitude.
- The State of Mississippi has a history of hurricanes and is vulnerable to storms from the Gulf of Mexico.
- The entire State is at some risk from water and wind hazards of tropical systems.
- Mississippi is susceptible to all levels of tropical storms, from tropical depressions to severe category 5 hurricanes. These tropical cyclones produce three major hazards: the storm surge, high winds, and rainfall-induced flooding.

- Storm Surge

Storm surge is a large dome of water often 50 - 100 miles wide that sweeps across the coastline near where a hurricane makes landfall. The surge of high water topped by waves is devastating. The stronger the hurricane, the higher the surge will be. Along the immediate coast, storm surge is the greatest threat to life and property.

- Winds

Hurricane winds can destroy buildings, mobile homes, and other property. Debris, such as signs, roofing material, siding, and other items become missiles in a hurricane. The winds are the greatest cause of property damage inland of the coast. In addition, hurricanes often produce numerous tornadoes, which add to the storm's destructive power. These tornadoes most often occur in rain bands well away from the center of the storm.

- Rainfall-induced Flooding

Widespread torrential rains, often in excess of 6 inches, can produce deadly and destructive floods. Long after the winds have subsided, hurricanes can generate immense amounts of rain. In 2005, Hurricane Katrina produced high rainfall totals that resulted in devastating floods throughout Mississippi.

- Mississippi's two High Risk Coastal Hurricane Impact Zones are Tier 1 – Coastal counties and Tier 2 - Inland High Risk counties.

- Tier 1 is comprised of Jackson, Harrison, and Hancock Counties and is the highest risk area because of storm surge and the initial impact of hurricane force winds.

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- Tier 2 is comprised of George, Stone, and Pearl River Counties. These inland counties are extremely susceptible to the damage inflicted by hurricane produced winds, precipitation, and tornadoes.
- o The threat of a hurricane could cause an event with mass evacuation and shelters but no landfall or substantial damage.

Assumptions

There are several assumptions that must be made concerning all hurricanes that make landfall within the State. While the following list is relatively comprehensive, it should not be considered to be all-inclusive.

- Evacuations in neighboring States, particularly in Louisiana, and Alabama could impact traffic flow and public shelter populations in Mississippi.
- Population growth and tourism are expected to continue on Mississippi's coast.
- Mass evacuation for a hurricane threat is more likely for the coastal counties.
- People living in storm surge zones, manufactured housing and FEMA trailers are the most vulnerable populations for a hurricane.
- In all coastal States, public response to evacuate for a hurricane will vary greatly from less than 5% compliance to over 80% compliance, depending on how they perceive each threat.
- Most evacuees will travel along the major evacuation routes and gravitate to the largest communities that offer the most accommodations and services.
- Due to Casino operations and the general tourist season, the coastal counties (Hancock, Harrison and Jackson) will have approximately 40,000 tourists in the immediate threatened area.
- Evacuation is the preferred protective action for a hurricane.
- Ten percent or less of evacuees will go to public shelters, but Out-of-State (Louisiana) evacuees could create higher demand in terms of percentages and numbers.

Tropical Storm Hazard Analysis

- **Storm Surge**

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Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 25 feet or more. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. Because much of Mississippi's densely populated Gulf Coast coastline lies less than 15 feet above mean sea level, the danger from storm tides is tremendous.

The level of surge in a particular area is also determined by the slope of the continental shelf. A shallow slope off the coast will allow a greater surge to inundate coastal communities. Communities with a steeper continental shelf will not see as much surge inundation, although large breaking waves can still present major problems. Storm tides, waves, and currents in confined harbors severely damage ships, marinas, and pleasure boats.

One tool used to evaluate the threat from storm surge is the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model. Emergency managers use this data from SLOSH to determine which areas must be evacuated for storm surge.

- **SLOSH Model**

SLOSH is a computerized model run by the National Hurricane Center (NHC) to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes by taking into account the following:

- Pressure
- Size
- Forward speed
- Track
- Winds

The calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads and other physical features. If the model is being used to estimate storm surge from a predicted hurricane (as opposed to a hypothetical one), forecast data must be put in the model every 6 hours over a 72-hour period and updated as new forecasts become available.

The SLOSH model is generally accurate within plus or minus 20 percent. For example, if the model calculates a peak 10-foot storm surge for the event, you can expect the observed peak to range from 8 to 12 feet. The model accounts

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for astronomical tides (which can add significantly to the water height) by specifying an initial tide level, but does not include rainfall amounts, river flow, or wind-driven waves. However, this information is combined with the model results in the final analysis of at-risk-areas.

The point of a hurricane's landfall is crucial to determining which areas will be inundated by the storm surge. Where the hurricane forecast track is inaccurate, SLOSH model results will be inaccurate. The SLOSH model, therefore, is best used for defining the potential maximum surge for a location.

If you have a Hurricane Evacuation Study (which combines SLOSH model results with traffic flow information), you do not need information about storm surge heights in a real hurricane situation. You will only need to know the forecast of the storm's intensity at landfall and the tide at that time to be able to make an appropriate evacuation decision

- **Inland vs. Coastal High Winds**

The intensity of a land-falling 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 strong enough to be 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-force 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 projectiles 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 eastern side of the eye wall of the hurricane. Wind speed usually decreases significantly within 12 hours after landfall. Nonetheless, winds can stay above hurricane strength well inland. Hurricane Katrina (2005), for example, battered inland cities as far north as 250 miles with gusts to nearly 100 mph.

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- **Coastal and Inland Freshwater Flooding**

While storm surge is always a potential threat, more people have died from inland flooding. Intense rainfall is not directly related to the wind speed of tropical cyclones. In fact, some of the greatest rainfall amounts occur from weaker storms that drift slowly or stall over an area. Inland flooding can be a major threat to communities hundreds of miles from the coast as intense rain falls from these huge tropical air masses. Some of the greatest rainfall amounts associated with tropical systems occur from weaker Tropical Storms that have a slow forward speed (1 to 10mph) or stall over an area. Due to the amount of rainfall a Tropical Storm can produce, they are capable of causing as much damage as a category 2 hurricane.

- **Hurricanes and Tornadoes**

Hurricanes also produce tornadoes, which add to the hurricane's destructive power. Typically, the more intense a hurricane is, the greater the tornado threat. When a hurricane brings its winds inland the fast-moving air hits terrain and structures causing a frictional convergence, which enhances lifting. Frictional convergence may be at least a contributing factor to tornado formation in hurricanes. The greatest concentration of tornadoes occurs in the right front quadrant of the hurricane.

Some hurricanes seem to produce no tornadoes, while others develop multiple ones. Studies have shown that more than half of the land falling hurricanes produce at least one tornado; Hurricane Buelah (1967) spawned 141 according to one study. In general, tornadoes associated with hurricanes are less intense than those that occur in the Great Plains. Nonetheless, the effects of tornadoes, added to the larger area of hurricane-force winds, can produce substantial damage.

We have no way at present to predict exactly which storms will spawn tornadoes or where they will touch down. The new Doppler radar systems have greatly improved the forecaster's warning capability, but the technology usually provides lead times from only a few minutes up to about 30 minutes. Consequently, preparedness is critical.

Operational Strategies and Response Protocols

Hurricane Status Conditions

- **SEOC Activation**

Depending upon the severity and magnitude of the emergency, the SEOC may be activated either partially or fully to support the accomplishment of the activities needed, at the appropriate level described below:

LEVEL-I: Any disaster or emergency that requires full State response where the State and local governments clearly are overwhelmed. The

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SEOC shall be fully operational with 24-hour staffing by all State ESFs. Implementation of the NRP and Regional Response Plan (RRP) would be requested by the State, along with a request to deploy the Emergency Response Team-A or the Emergency Response Team to the SEOC to support response and recovery efforts. The State Emergency Response Team (SERT) could be deployed forward to the area of operations with resource support, direction, and control from the SEOC.

Note: This level corresponds with FEMA RRCC level-1: Massive, an event/incident involving massive levels of damage, with severe impact or multi-state scope. This level will result in a Presidential disaster declaration, with major Federal involvement and full engagement of Federal regional and national resources.

LEVEL-II: Involves an emergency or disaster that requires full State response and possible Federal response and recovery assistance. The SEOC shall be fully operational on a continual 24-hour basis with staffing from all State ESFs. Deployment of the FEMA Region IV SLO to the SEOC shall be requested by the MEMA Director.

Note: This level corresponds with FEMA RRCC level-2: Moderate, an incident/ incidents involving moderate levels of damage, which will likely result in a major Presidential disaster declaration, with moderate Federal assistance.

LEVEL-III: Involves any emergency or pending disaster that is likely to require the involvement of several ESFs. All primary and support agencies shall be alerted, the SEOC staffed with MEMA and essential ESF personnel. The FEMA Region IV State Liaison Officer (SLO) would likely be requested to stand by for deployment to the SEOC.

Note: This level corresponds with Regional Response Coordination Center (RRCC) level-3: Minor, an incident/description involving levels of damage, which could result in Presidential declaration of an emergency or disaster. Some Federal involvement may be requested by State and the request.

LEVEL-IV: Normal day-to-day operational activities. Involves any incident that does not exceed the capabilities of local government or results in minimal requirements for State level assistance. Only those agencies or ESFs with normal day-to-day emergency service responsibilities or regulatory requirements for the incident will be notified by MEMA. Full SEOC activation is not expected.

Evacuation Protocol

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Evacuation involves direction, coordination, operations, and follow-through for the threat of a hurricane to the State of Mississippi. State and local emergency management agencies (EMAs) and ESF support agencies will assist with evacuation of people in storm surge zones in the coastal counties and other vulnerable populations of the State during the threat of a hurricane. (See attachment A- Emergency Evacuation Plan)

Mitigation/Preparedness

- **Authorities**

The Mississippi Emergency Management Law (2005 Title 33, Chapter 15) provides the authority to the county supervisors or elected authority to request evacuation when deemed necessary to protect lives.

Elected officials base their decisions on a variety of factors with particular reliance upon recommendations from the local EMA director.

Each local government is responsible for evacuating areas within its jurisdiction and shall establish priorities and regulations regarding evacuation of residents and visitors.

During the threat of tropical systems, Mississippi's three coastal counties are at the most risk and will implement evacuation plans derived from hazard analyses, such as storm surge zone maps and floodplain maps. Local agencies in the coastal area will open approved shelters. As needed, will direct evacuees out of the county for the threat of a major hurricane.

Prior to public announcement, coastal counties should coordinate with MEMA and neighboring/border counties of any decision to evacuate. Such action will enable agencies to prepare for traffic control and shelters.

Inland counties should consider recommendation of "in-county" evacuation to local shelters for residents who are vulnerable to floods and high winds such as people living along rivers or in manufactured housing. In most cases, it is not necessary for any inland county to issue an out-of county evacuation order.

In most situations, however, State agencies, as coordinated by MEMA, MDPS, MDOC, and MDH will provide guidance and assist local governments with traffic control, public information and movement of special populations (e.g., elderly, hospital patients, and prisoners).

State agencies will be authorized to assist when the Governor declares a State of Emergency.

Response/Recovery

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- **Decision Making**

Elected officials weigh a number of factors in considering whether evacuation is necessary for their jurisdictions. They also consider directives about protective actions as recommended by emergency management agencies (EMAs).

To support such decisions, MEMA and the local EMA directors employ the latest technology while also discussing the situation with various Federal, State, and local agencies. Officials make recommendations and decisions as a joint process with consensus as a goal.

Governmental and commercial programs exist on web sites. Some programs track the storm while others are being developed to address potential storm damage of designated geographic areas.

HURREVAC is a computer program that graphically monitors the track of the storm based upon input of the official forecast advisories from the National Hurricane Center (NHC). Unlike public web sites, HURREVAC is available only to government officials. This Windows program also includes strike probabilities, inland wind potential effects, past hurricane tracks and an evacuation decision making feature that incorporates results of a coastal county's Clearance Times with the 72-hour forecast. The Decision Arc feature of HURREVAC indicates the onset of gale force winds (when evacuation should end) with the county's Clearance Times and stands as one critical factor to consider for evacuation.

While HURREVAC is the most comprehensive tool available for an evacuation recommendation, authorities should consider all available information including special comments in the NHC "tropical discussion" and forecasts from local National Weather Service (NWS) meteorologists. The NHC, for example, employs the aid of several computer models before issuing each official forecast.

- **Strike Probabilities**

Probabilities are expressed as percentages around the official forecast track of a storm up to three days into the future. It is the probability that a storm will make landfall or that the eye will come within 65 miles of a certain location. The NHC issues strike probabilities every six hours.

The NHC cautions that their forecasts and strike probabilities have error rates and therefore recommends that authorities take actions prior to the onset of the gale force winds (as opposed to the landfall or eye of the storm passing).

Maximum Probability	Hours before landfall (i.e., eye of the hurricane)
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10%	72
13-18%	48
20-25%	36
35-45%	24
60-70%	12

Decision makers must consider the time it will take to evacuate a county with the strike probabilities. The NHC generally issues Hurricane Warnings approximately 24 hours prior to possible landfall. Gale force winds could arrive several hours prior to landfall. Thus, decisions could be made with only 25% strike probability in some cases.

▪ **Phased Evacuation**

Most coastal EMAs recommend some form of phased evacuation so residents and visitors can depart in a timely and orderly manner. Local officials begin the consideration of their options during the Monitoring phase or when the NHC issues a Hurricane Watch. During the Watch and Warning phase, or during a Hurricane Warning, officials need to decide what phase, if any, to implement for asking people to relocate based on the county's designated evacuation zones.

MEMA, Mississippi Department of Transportation (MDOT) and Mississippi Department of Public Safety (MDPS) should coordinate closely with each coastal county for staged evacuation because evacuations by neighboring States and counties could cause convergence if the timing is not calculated properly.

Each staged evacuation order should note the kinds of future evacuation orders that could follow at a later time, based on forecasts from the NHC.

The basic phases are: Counties Issue all Evacuation Orders

○ **Spontaneous Evacuation**

Some residents or citizens in the threatened areas may observe an emergency incident or receive unofficial word of an actual or perceived threat and, without receiving instructions to do so, elect to evacuate the area. Their movement, means, and direction of travel is unorganized and unsupervised.

○ **Voluntary Evacuation**

This is a warning to persons within a designated area that a threat to life and property exists or is likely to exist in the immediate future. Individuals issued this type of warning or orders are NOT required to evacuate; however, it would be to their advantage to do so.

○ **Mandatory or Directed Evacuation**

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This is a warning to persons within the designated area that an imminent threat to life and property exists and individuals **MUST** evacuate in accordance with the instructions of local officials

▪ **Traffic Control**

The Mississippi Department of Transportation (MDOT) and Mississippi Department of Public Safety (MDPS), through MEMA, will coordinate with local governments including law enforcement, for monitoring and assisting the orderly flow of traffic.

Local law enforcement should coordinate any road closures, exit closures and evacuation route changes with MEMA, MDOT, and MDPS.

A number of variables that could impact traffic control:

- Number of vehicles
- Number of travel lanes available
- Maintained vehicle speed
- Daylight or night travel
- Number of points of entry and exit from evacuation arteries
- Control of traffic and clarity of directional signs
- Frequency and severity of transportation breakdowns
- Location of roadway accidents
- Percentage of trucks and buses
- Weather conditions

Local authorities will monitor traffic control at designated critical intersections and coordinate information about bridges, boaters and train crossings.

MDOT and MDPS will communicate with local EOCs and local law enforcement agencies regarding traffic flow. After reviewing the web-based travel demand forecast models and traffic count reports, MDOT and DPS could make adjustments with local law enforcement with officers on site and/or variable message boards and mobile traffic signals.

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- **I-55 & I-59 Lane Reversal Contingency Plan**

(See MDOT Contra Flow Plan) ATTACHMENT 8

- **Out-of-State Coordination**

For the threat of some major hurricanes, MEMA, MDOT, and MDPS will activate an evacuation liaison cadre in the SEOC to coordinate with local EOCs, State EOCs in Louisiana, Alabama, and the FEMA evacuation liaison team at the FEMA ROC in Atlanta.

The liaison teams will employ the use of the web-based travel demand forecast computer models and HURREVAC as resources to determine the impact of interstate travel and make recommendations about traffic management. The teams will also recommend specific evacuation stages for the two coastal counties if necessary.

Public Information agencies in the SEOC will exchange information with State agencies such as Mississippi Department of Human Services (MDHS), Mississippi Department of Transportation (MDOT), and American Red Cross (ARC) about lodging availability and recommended evacuation routes.

Additional preparedness efforts specific to evacuation can be found in the Hurricane Annex of the Alabama Emergency Operations Plan as well as www.ema.alabama.gov. The State of Louisiana has provided extensive evacuation planning efforts with the Mississippi Department of Transportation (MDOT) and the Mississippi Department of Public Safety/Highway Patrol (MDPS/MHP). Upon evacuation of Louisiana, specifically New Orleans, the governor of Louisiana, in conjunction with the Office of the Governor of Mississippi along with key agencies of both states will initiate the activation of the contra-flow plan into Mississippi to ensure the safe, timely evacuation of all Louisiana citizens. This plan with specific information and instructions can be found in the 2006 Louisiana Citizens' Awareness and Disaster Evacuation Guide at www.ohsep.louisiana.gov as well as on the Mississippi Department of Transportation website at www.gomdot.com.

- **Re-entry Protocol**

These policies have been established to aide conjoined communities, which may be adversely affected by an uncoordinated re-entry process. They are not intended to dilute the power of local officials or restructure the routine reentry policies of local communities. It remains MEMA's mission to facilitate a cohesive, well-coordinated approach to evacuation and re-entry procedures, Statewide.

- **Direction and Control**

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Operations and missions required as a result of a hurricane will be carried out during the response and recovery phases.

- **The Response Phase**

The Response Phase occurs prior to landfall and lasts until lifeline systems are at least partially restored. During this phase, functions that are critical to lifesaving, protection of the populace, meeting basic human needs, securing critical infrastructure, and safeguarding State records are performed.

- **The Recovery Phase**

There are usually no clear distinctions between when the Response Phase ends and the Recovery Phase begins. There is typically a time period after the hurricane in which both phases are in effect simultaneously. The Recovery Phase begins a few days after the hurricane and can last as long as two years. During this phase, the Federal government provides disaster relief upon Presidential Disaster Declaration. Functions during this phase include Federal relief under PL 93-288 for public and individual assistance, establishment of Disaster Response Centers, establishment of temporary housing facilities, and Federal disaster loans and grants. Long-term recovery includes restoration of affected areas to their normal or to an improved state.

- **Re-entry Requirements**

All re-entry requirements are under the authority of the local governing body and are coordinated between local government, MEMA and other state agencies.

- Phase 1 – State & Local Authorized Re-entry**

- **Response (State Response)**

- This stage requires a response from the MEMA, MDPS, and the MDOT, unless the agencies listed on the next page are requested. During this phase only critical work force personnel will be allowed back into the impacted communities to assess damages and begin repairs. Critical workforce personnel and agencies may include:

- 1) Utilities including – Power, Water, & Gas
 - 2) Emergency Medical Services
 - 3) Any State Responding Agency
 - 4) Law Enforcement and Fire Services

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5) Media

- **Response (Local Response)**

This stage will be restricted to local government staff, law enforcement, utility workers, and emergency personnel. County work crews will be allowed to return and begin the repair process. As roads, highways, and bridges are cleared and declared safe for use, additional agencies and personnel will be allowed to return. Depending on the extent of damages, members of the working media may be allowed escorted entry into the evacuated zone.

Objectives

The safety of the public will be taken into consideration at all times during the re-entry process. No citizens or property owners will be readmitted until the following objectives have been met:

- Utility items have been surveyed and deemed to be safe, passable, or operational.
- Natural gas lines, water, sewer, electric lines, must be surveyed for damage and checked for possible hazards.
- Water/sewer lines must have adequate water pressure and present no health risks from raw sewage contamination.
- Downed power lines, which might pose safety or health problems to residents or property owners.
- The structural integrity of bridges and overpasses to provide routes for county public works and transportation crews must be determined to be sound.
- All streets/roads must be cleared of as much debris as possible or deemed to be safe for vehicular traffic in damaged areas.

Phase II – Public Re-entry

After the impacted areas have been secured by local officials and deemed safe for access, anyone with evidence of business ownership or residency in the evacuated area will be allowed entry. Re-entry access may be terminated at any time to ensure restoration of services.

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During evacuations where major destruction to private or public property has occurred, local officials are responsible for providing escorted transportation to residents and business owners. The objective is to allow residents and business owners the opportunity to return to their properties as quickly as possible under safe conditions so they can assess the extent of damage.

Note: Officials and residents should be reminded that the time between Phase I and Phase II could be several days. The decision to re-open or begin the phased re-entry process is contingent upon the following criteria:

- The extent of damage to impacted areas. The local EMA, in coordination with the State of Mississippi, will conduct Public Damage Assessments (PDAs).
- Following a joint conference call between MEMA, MDOT, and the MDPS.

Phase III - Normal Operations

Restoration to normal operations.

Re-entry Planning Assumptions

- Re-entry procedures following hurricanes are exacerbated due to:
 - Potential magnitude and scope
 - Mass evacuations
- Officials should prepare for solutions to allow limited access after 72 hours, recognizing that health and safety conditions could still be severely compromised.
- Authorities will be able to control re-entry for coastal zones (e.g., barrier islands and beaches) more than for mainland areas.
- State and Federal agencies will immediately make a presence, but re-entry will be initiated at the local level.
- Conditions inland will have a direct effect on re-entry to the coast.
- Public Information under ESF 15 (External Affairs) will be vital to effective re-entry.

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- Staff reinforcement at all levels will be required because many of the staff in re-entry will be the same workers who were on duty in the pre-landfall phases.
 - Initial ESFs in Re-entry
 - Transportation (ESF 1)
 - Communications (ESF 2)
 - Public Works (ESF 3)
 - Fire Fighting (ESF 4)
 - Emergency Management (ESF 5)
 - Health and Medical Services (ESF 8)
 - Law Enforcement and Security (ESF 13)
 - External Affairs (ESF 15)

MEMA Actions for Tropical Storms/Hurricanes

- **Hurricane Staging Areas**

Staging areas are strategically located sites around the State for use in times of disasters. These assembly points can be activated either before the landfall of a hurricane, usually during the Watch and Warning Phase -when a State of Emergency is declared by the Governor, or immediately after the storm passes. State agencies and other organizations can bring personnel and equipment to the sites. The groups can more easily coordinate and begin reentry to assist communities affected by the storm.

MEMA will coordinate the activation of the sites with the local emergency management agency director, and the Mississippi National Guard. In preparedness, local and State officials should notify MEMA of any changes affecting the site. For activation, the two agencies would consider an advance team to review and secure the site before staff and supplies are mobilized. Staging areas and personnel lodging facilities will be separate from public shelters.

Administrative Support

Each State agency will have to develop internal procedures for administrative support.

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Error! Simpson Hurricane Scale

Courtesy of [National Hurricane Center](#)

This can be used to give an estimate of the potential property damage and flooding expected along the coast with a hurricane.

Category	Definition	Effects
One	Winds 74-95 mph	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal road flooding and minor pier damage
Two	Winds 96-110 mph	Some roofing material, door, and window damage to buildings. Considerable damage to vegetation, mobile homes, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of center. Small craft in unprotected anchorages break moorings.
Three	Winds 111-130 mph	Some structural damage to small residences and utility buildings with a minor amount of curtain wall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain continuously lower than 5 feet ASL may be flooded inland 8 miles or more.
Four	Winds 131-155 mph	More extensive curtain wall failures with some complete roof structure failure on small residences. Major erosion of beach. Major damage to lower floors of structures near the shore. Terrain continuously lower than 10 feet ASL may be flooded requiring massive evacuation of residential areas inland as far as 6 miles.
Five	Winds greater than 155 mph	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Major damage to lower floors of all structures located less than 15 feet ASL and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5 to 10 miles of the shoreline may be required.

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ATTACHMENTS

Attachment 1 – MDE Emergency Evacuation Plan

Attachment 2 – MHP Law Enforcement SOG

Attachment 3 – MDHS Shelter List

Attachment 4– Pet Evacuation Plan

Attachment 5– Public Information SOG (Under contract)

Attachment 6 – Communications SOG (Draft Pending)

Attachment 7 – Logistics Management Hurricane (Draft)

Attachment 8 - MDOT Hurricane Evacuation Guide

Attachment 9 – MEMA District Map