



Evacuation and Contingency Zones Matagorda Area

Counties: Calhoun Jackson Matagorda Victoria

The enclosed map and the accompanying chart show evacuation times for both a partial and a complete evacuation for two types of hurricane conditions. For minor hurricanes, persons in evacuation zones need to consider evacuation. For major hurricanes with sustained winds in excess of 130 mph, persons in contingency zones should also consider evacuation.

These evacuation guidelines are the result of information obtained using wind fields from the National Weather Service's storm surge computer model called SLOSH (Sea, Lake, Overland Surge from Hurricanes) and evacuation route capacities. The resulting Hurricane Relocation Planning for Calhoun, Jackson, Matagorda and Victoria counties is a unique program that presents a carefully developed method of forecasting when evacuation routes may become unsafe or impassable because of high winds, as well as the time required for residents and vehicles in each evacuation and contingency zone to clear the hazardous areas safely.

Evacuation zones represented on this map indicate areas where storm surge flooding generated by minor hurricane winds could occur. These zones are represented by the darker shaded area and are indicated by letters (C—Calhoun, J—Jackson, M—Matagorda and V—Victoria) with subscript **numbers** for areas within the counties. **Contingency zones** are those areas that could be affected by storm surge and dangerous winds generated by major hurricanes with sustained winds greater than 130 mph. These zones are represented by the lighter shaded area and are indicated by letters (C—Calhoun, J—Jackson, M—Matagorda and V—Victoria) with subscript **letters** for area identification.

This is a very thorough forecasting program. It must be understood, however, that this program cannot take into consideration the effect that isolated rain and local

drainage may have on your ability to evacuate from your area.

Use the enclosed map to determine your zone. Using the chart, check the number of hours it could take you to evacuate your family to a safe area during peak traffic. Remember that the estimated number of hours listed means that evacuation from your zone would need to be completed before evacuation routes are closed. Also remember — **evacuation routes can be cut off by wind or storm surge many hours before the hurricane makes landfall.**





If you prefer to leave early, do so during the **hurricane watch** period. Otherwise, wait until your local governing authority recommends evacuation of your area and **then leave promptly**. Persons in unincorporated areas receive evacuation recommendations from their county governments, while those living within incorporated areas are advised by their municipal governments.

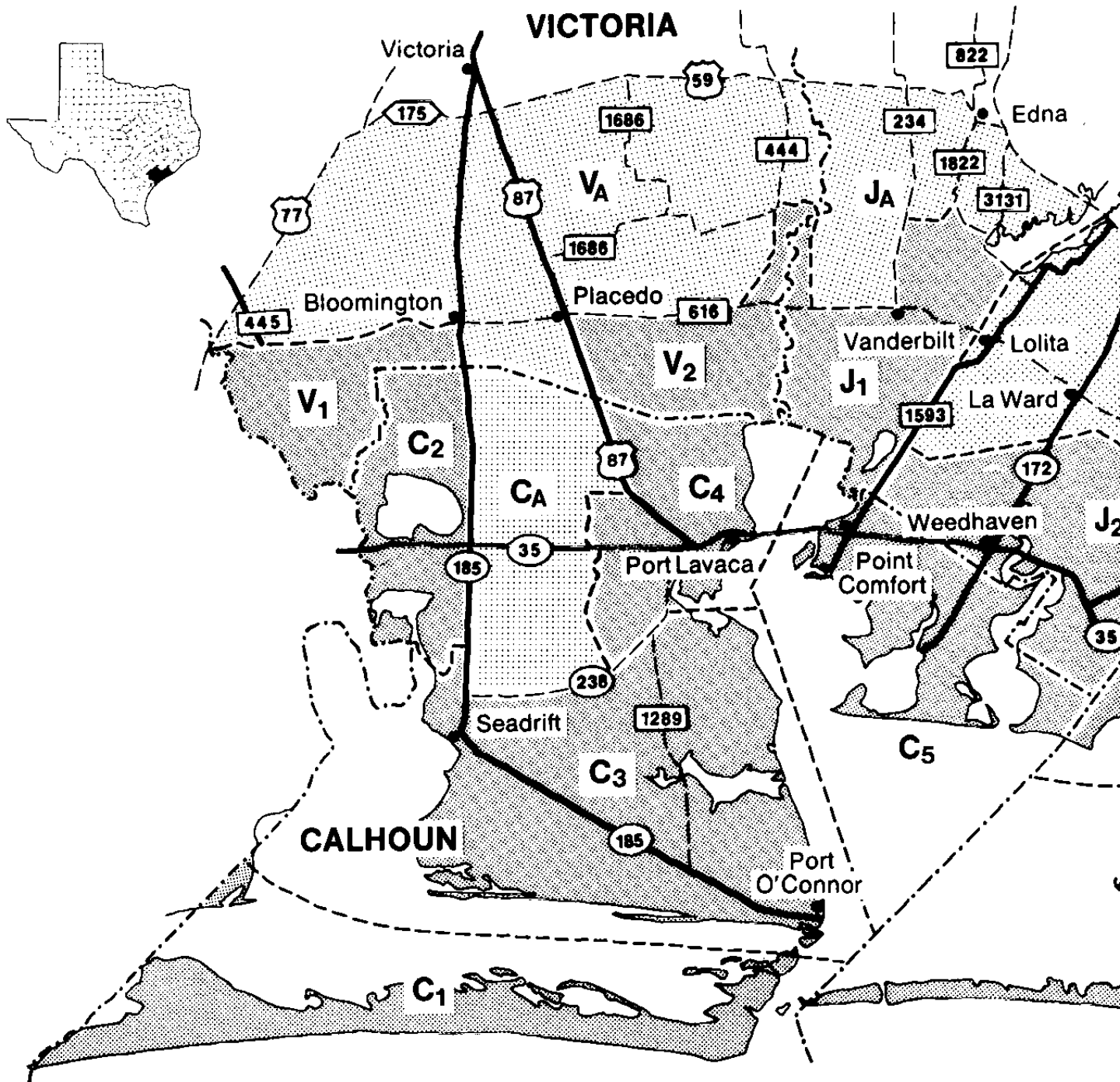
Before evacuating and while evacuating, keep posted on any reported evacuation route closings and modify your route accordingly. The primary **Emergency Broadcasting Station** in the Matagorda area is **KMAL 1410 AM** in Victoria. NOAA Weather Radio is a service of the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce. It provides continuous 24-hour per day broadcasts of the latest weather information directly from National Weather Service offices. Taped weather messages are repeated every four to six minutes and are revised regularly. During severe weather, forecasters can interrupt the routine broadcasts and substitute special warning messages. **NOAA Weather Radio** broadcasts are made on highband **FM frequency 162.400** (Victoria) Megahertz (MHz).

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Evacuation Zones: Areas that could be flooded by storm surge from minor hurricanes.

Contingency Zones: Areas that can be flooded by storm surge or be impacted by severe winds from major hurricanes

-  Evacuation Zone (subscript numbers)
-  Contingency Zone (subscript letters)
-  Main Evacuation Routes
-  Other Routes



* Evacuation time is the estimated number of hours it would take for all evacuating vehicles in a zone to reach safe areas.

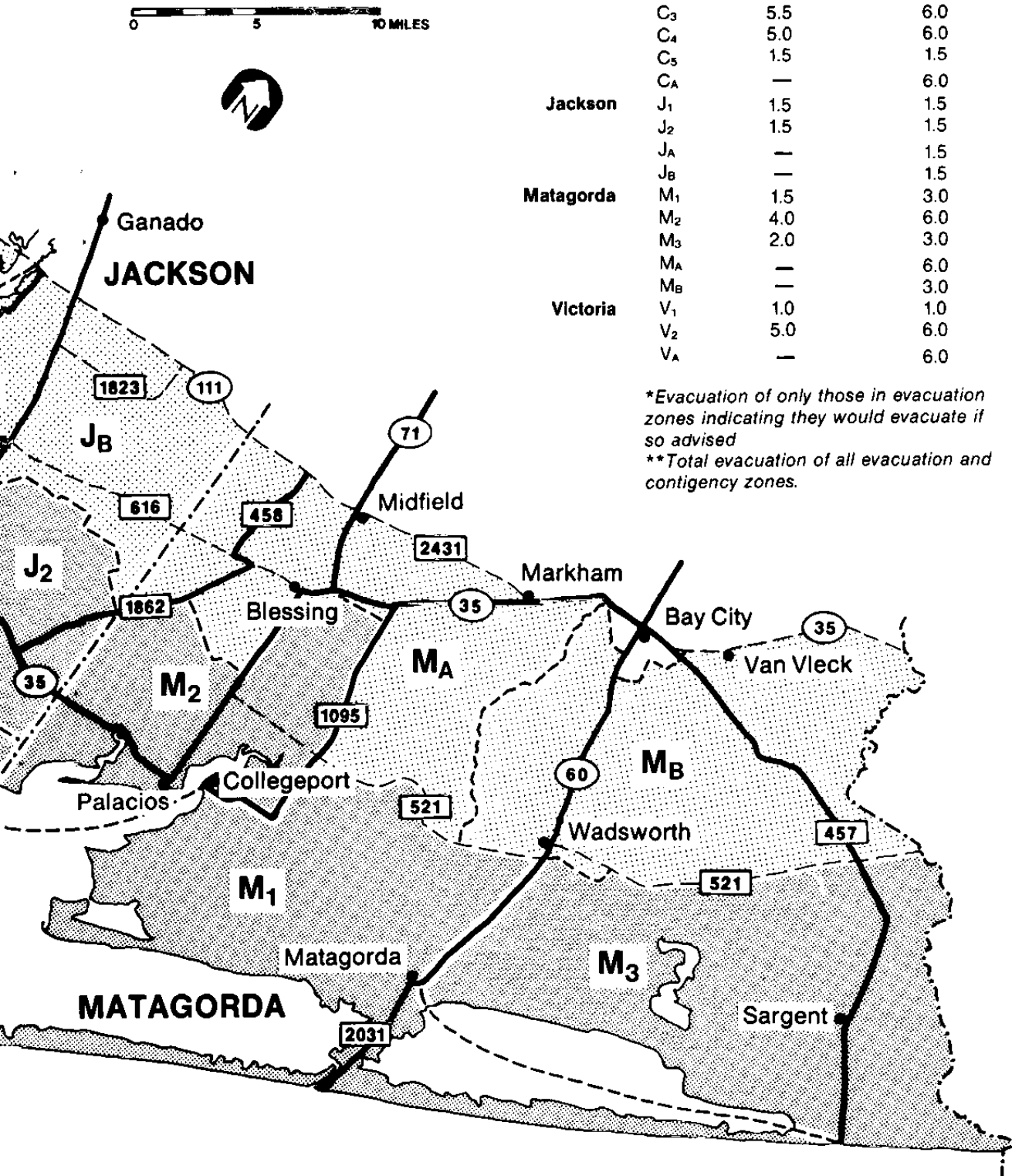
...nes with sustained winds over 130 mph.

Estimated Evacuation Time in Hours by County and Zone*

		Partial Evacuation*	Total Evacuation**
Calhoun	C ₁	5.5	6.0
	C ₂	5.5	6.0
	C ₃	5.5	6.0
	C ₄	5.0	6.0
	C ₅	1.5	1.5
	C _A	—	6.0
Jackson	J ₁	1.5	1.5
	J ₂	1.5	1.5
	J _A	—	1.5
	J _B	—	1.5
Matagorda	M ₁	1.5	3.0
	M ₂	4.0	6.0
	M ₃	2.0	3.0
	M _A	—	6.0
	M _B	—	3.0
	M _C	—	3.0
Victoria	V ₁	1.0	1.0
	V ₂	5.0	6.0
	V _A	—	6.0

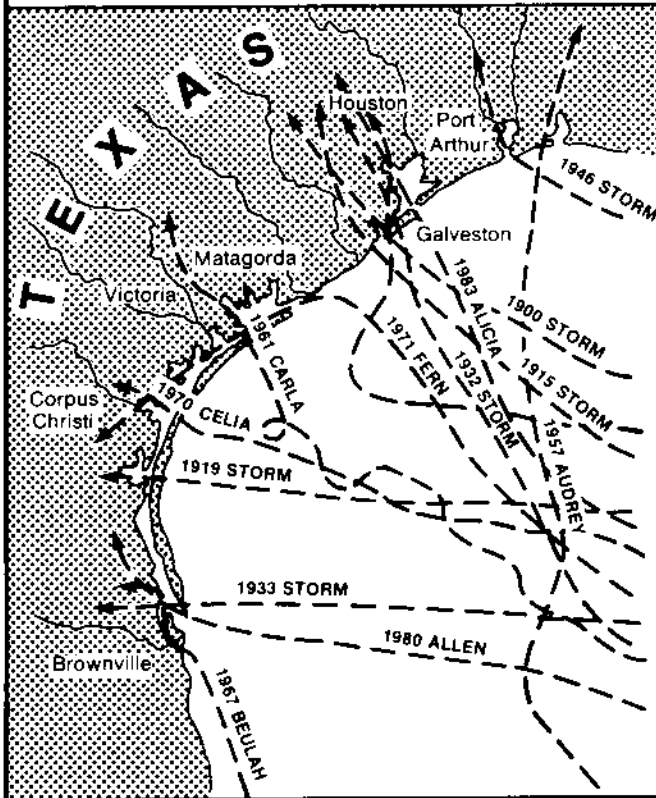
*Evacuation of only those in evacuation zones indicating they would evacuate if so advised

**Total evacuation of all evacuation and contingency zones.



...safe areas using available evacuation routes.

TRACKS OF SOME MAJOR OR EXTREME HURRICANES THAT HAVE STRUCK THE TEXAS COAST THIS CENTURY



HURRICANE HISTORY

Date Storm Made Landfall	Deaths	Wind MPH	Tides (Ft.)
1900-Sept. 8	6,000+	135+	15-20
1915-Aug. 17	275	135+	15-20
1919-Aug. 14	287	Severe in Both Florida and Texas	
1932-Aug. 13	40	100+135	10-15
1933-Aug. 4	40	80+	
1946-Oct. 3	2	135+	10-15
1957-June 27 Audrey	381	100	12+
1961-Sept. 11 Carla	46	135+	15-22
1967-Sept. 20 Beulah	15	109+	Record number of Tornadoes; Major Floods
1970-Aug. 3 Celia	11	130-170	
1980-Aug. 9 Allen	2	90-100	8-12
1983-Aug. 17 Alicia	17	115	10-11

Hurricane Facts for the Texas Coast

The pattern of hurricanes reflects a major hurricane about every ten years. Hurricanes hit the Texas coast on an average of one every 2 1/2 years, bringing the killing and destructive storm surge, rain, wind and tornadoes.

The Texas coast continues to grow in population, and with the increased population, there is increased building right down to the water line. In addition, in some areas where this increased growth is occurring, the land has sunk as much as ten feet, making many more areas subject to tidal flooding.

Newcomers to the coast are unfamiliar with the effects of tropical storms and do not know of the necessity of planning and steps to take to protect life and property. As much as a third of the coastal population has never experienced a hurricane.

Each hurricane has its own characteristics—and is accompanied by features which provide distinctly different types of damage. For example, three hurricanes which hit Texas—Carla (1961), Beulah (1967) and Celia (1970)—each had different characteristics and damage effect.

Carla, one of the largest hurricanes in the Gulf of Mexico, had a 22-foot storm surge, and winds up to 160 mph. Tidal flooding occurred on most all of the Texas coast, providing the most storm damage.

Beulah was characterized by heavy rainfall (30-plus inches), providing widespread freshwater flooding, and had more than 100 tornadoes, spreading into the center of the state.

Celia, different from both Carla and Beulah, was a small (70 miles across), very strong hurricane which strengthened rapidly as it was approaching land, with gusts to 162 mph before the recorder broke.

So... hurricanes can have high storm surge, widespread saltwater and freshwater flooding, strong and violent winds, tornadoes, and will usually have a combination of them all.

Storm Surge

Nine out of ten deaths which occur in a hurricane are from the storm surge. The storm surge also causes most of the loss of property in hurricanes. The storm surge is in addition to the regular tide, and is caused by the "lifting up" of the ocean under the storm. The maximum surge is usually to the right of the track of the hurricane, near the point of maximum winds. This makes the greatest danger from both winds and surge to the right of the storm track.

The 22-foot surge in Carla in 1961 at Matagorda Bay is well remembered by Texans, but in 1969, Hurricane Camille caused a 25-foot surge in Mississippi, the highest on record in the Western Hemisphere. Protection against such surges is difficult. Sea walls and strongly constructed buildings offer some protection, but are not indestructible. The only sure way to avoid damage from a storm surge is not to build in lowlying coastal areas. Since most of the Texas coast is below 20 feet MSL, much of the coastal area is susceptible to storm surge damage.

Tornadoes

Associated with the other destructive elements of a hurricane, tornadoes are a threat both at the coast and inland, and always pose a threat in the hurricane area. Hurricane Beulah, with 15 tornadoes (67 in one day), set a national record.

Effect on Shoreline

When a hurricane hits a coastline, erosion at the beach sometimes moves the shoreline several hundred feet. When a hurricane crosses offshore barrier islands, the powerful currents cut channels completely through the island. Hurricane Allen cut through South Padre Island in 69 places. To place a structure over one of these channels is deliberately courting disaster. Building near the shore in an area susceptible to erosion is asking for trouble.

The Texas coast has been mapped showing erosion zones and washover channels. This information is public, but most existing home and condominium owners are not aware of these natural hazards.

Freshwater Flooding

Hurricanes sometimes produce large amounts of rainfall, and the resultant flooding causes widespread damage well away from the coastline, as in Beulah. Even tropical storms, such as Claudette in 1979, which set a new national 24-hour rainfall record of 43 inches near Alvin, can cause widespread property damage from low-level flooding. Property owners should ascertain susceptible levels for flooding and make plans to build at levels to minimize flood damage.

Increasing Danger

The increase of coastal population and the larger area of flooding potential combines to increase the chance of a major disaster. To prepare for such a disaster on the Texas coast, planning and action is needed by all involved entities, including the development of evacuation plans and a continuous awareness program to educate the public on actions before, during, and after a hurricane threat or occurrence. These hurricane facts are to remind the long-time resident and inform the newcomer of hurricane hazards. They are not intended to alarm but to inform. Sooner or later we will experience another major or extreme hurricane. Ignorance or apathy to these facts can be our worst enemy.

Evacuation and Contingency Zones for the Galveston Bay, Corpus Christi, Lake Sabine and Brownsville areas are available by contacting the Sea Grant College Program, Texas A&M University, College Station, Texas 77843-4115. An accompanying Keys to Hurricane Safety informational brochure is available in both English and Spanish.

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