

Should Your Family Evacuate?

Whether to evacuate in the event of a hurricane or not? That is the question for tens of thousands of Houston-area families. Unfortunately, for most, the answer is not as clear as we might hope. Many emergency managers recite the well known adage, "run from the water; hide from the wind." As a general proposition, this is good advice and supported by the statistical evidence that the vast majority of deaths in hurricanes are caused by drowning. However, attempting to interpret this admonishment in residents' individual situations is not easy and, I believe, there are significant exceptions to this general rule.

As we discovered in Hurricane Rita, there are very serious consequences from the mere decision to evacuate. Approximately 140 individuals died in the Rita evacuation. Most were elderly and died from stress-related afflictions. A few died from carbon monoxide affixation while sitting in an idling automobile. Of course, hundreds of thousands were trapped in miserable circumstances. Rita proved that the idea that evacuating is "better-safe-than-sorry" is not necessarily accurate.

There is one group for which the answer is very clear. That is those residing in the surge zones. Residents of these areas have no choice. They must, by law, evacuate. These zones are areas that have been identified by the State as likely to be inundated by a hurricane's tidal surge, and have recently been identified by zip code.

For any of you that live in these areas and are thinking that you might ignore the evacuation order, you should reconsider. A hurricane tidal surge is like a tsunami that keeps coming for 10-12 hours. As the surge destroys structures in its path, the flotsam created from that debris becomes a battering ram that flattens anything in its path. If you doubt this, go on-line and do a search for pictures of the Mississippi coast after Katrina. In the area hardest hit by the surge it appears that God took his hand and wiped everything clean for miles inland.

And the water coming at you is not pristine beach water. It has picked up everything in its path, including oil, sewage from over-run treatment plants, chemicals and dead animals. It is a filthy, polluted soup that can kill you. If you live in the surge zone and do not evacuate, you are seriously jeopardizing your life and the loved ones who live with you.

If you do not live in the surge zones, the question of whether you should evacuate becomes much more difficult. At the outset, let me say that if your only reason to evacuate is a concern that you may lose electricity, do not evacuate unless you have some special medical problem that requires electrical service. You would be better off waiting until after the storm passes to see if you lose service or not. If you do lose power, you can leave once the storm has passed and the roads are clear.

This is especially advisable when you consider the degree of forecast uncertainty that still exists. When Rita was 24 hours from landfall, the area in which there was a one-in-four chance of taking a direct hit was still almost 250 miles wide. Considering that we will have to call an evacuation in the 48-72 hours time frame, most calls for evacuation will be false alarms. If you evacuate every time a storm threatens our area only because you're concerned about losing power, you may be on the road frequently for no reason.

Where I part ways with some of my friends in emergency management is that I believe there are some good reasons for people living outside the surge zones to evacuate. There are principally two risks that you should assess.

The first is the risk from wind. The map below is a prediction of what the maximum wind speeds would have been had Rita made landfall at Freeport (the worst case scenario for the Houston area). It shows 100+mph winds extending as far inland as Montgomery County. Most structures will survive even these winds. I took a helicopter flight over the path of Rita. Many homes lost their roof and had significant water damage, but few totally collapsed.

There are, however, significant exceptions. One, of course, is mobile homes. If you live in one of these and are anywhere near the strong wind cone, you should leave. The other exception is trees. When I took my helicopter tour of the Rita path it was hard to comprehend the number of trees that were blown down. Pine trees are particularly problematic. On that flight I saw a number of instances where a pine tree had fallen through a house, cutting it in two like a knife going through a cake. If you have large trees in your yard that are close enough to fall on your house if they came down, I would recommend that you evacuate.

Even if you don't have either of these special risks to deal with, you should be mindful that while a 100 mile-per-hour wind might not blow down your house, it will pick up all sorts of things and turn them into lethal projectiles. This is particularly dangerous for homes that have large plate glass windows. If you have this situation and are unable to secure the windows with plywood or other protective covers, again, I would leave.

In addition to the wind, residents outside the surge zone should also consider their vulnerability to upland flooding. This is flooding that's not caused by the hurricane pushing the Gulf of Mexico up on land, but rather from the storm dumping torrential rainfall on the watershed and flooding the bayou system. The tidal surge can exacerbate upland flooding by acting as a dam and not allowing the bayous to drain as they would normally.

Rice Professor Phil Bedient has created a model that projects flooding in the event of a simultaneous 22-foot surge and a 100-year rainfall. The model shows flooding over an enormous area extending as far west as SH 99 and as far north

as Beltway 8. The Braes Bayou and White Oak Bayou watersheds are particular vulnerable to this type of flooding. While having a bayou back up into your house does not create the same danger as the tidal surge, there are risks associated with any flooding, and it's obviously extremely unpleasant. I believe that anyone living in the 100-year flood plain should also evacuate in the event of a Category 3-5 storm. You can easily determine whether your home is in this flood plain by accessing <http://maps2.tsarp.org/tsarp/>.

The most important advice I can pass on to anyone regarding making the decision to evacuate is: decide now. Do not wait to decide if you're going to evacuate and where you're going to go until a storm is grinding down on us in the Gulf. We all tend to make poor choices when under stress and people around us are panicking. Set aside some time in the next couple of weekends and think about this issue. Do the research and determine if you are in a surge zone or a 100-year flood plain. Decide in advance at what level storm you will evacuate. Make a plan regarding where you will go and what you will need to take with you. Make checklists. There is detailed evacuation planning software available free on-line at www.OneStorm.org. I also have some checklists available at www.BillKingHouston.com that you might find useful.

In the middle of the night on Wednesday, September 21, 2005, the Houston region was staring down a loaded gun barrel. Hurricane Rita was on a course to make landfall around Freeport as one of the strongest Category 5 hurricanes on record. The truth is that we dodged a bullet when she turned to the east and lost some of her strength. But as a result, we know that a catastrophic storm making landfall in our region is no longer a hypothetical possibility; it's a reality. We also know what a tangled mess a full-scale evacuation of the area will be. Even with the improvements made to evacuation plans over the last two years, evacuating 1-2 million residents is never going to be a pretty picture. Nonetheless, you can minimize the effect on your family by planning ahead. Please do it today.