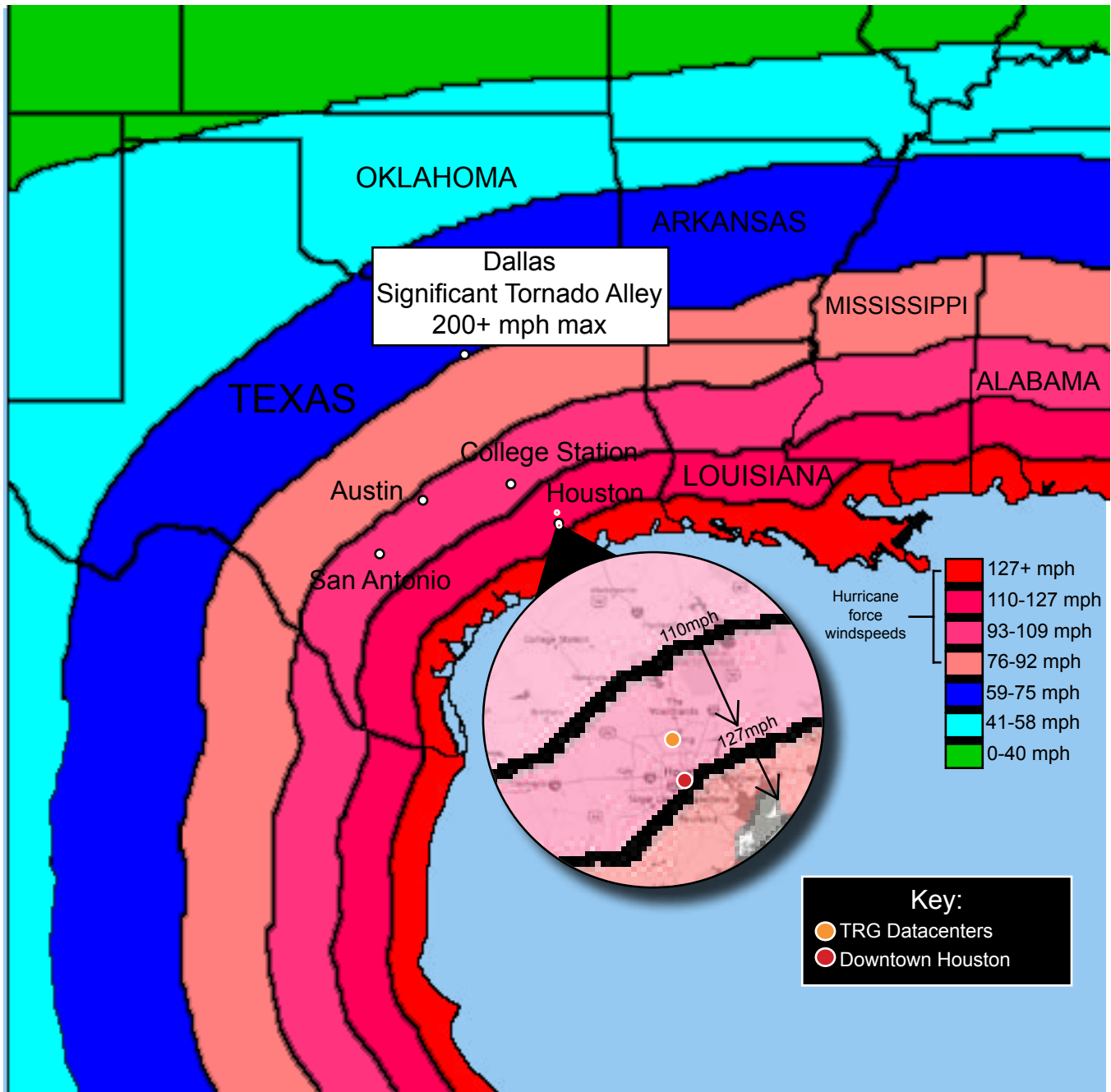


# Inland Wind Model on “The Big One”

This is the wind speed model for the worst case scenario; a category 5 hurricane at a forward motion of 24 knots otherwise known as “The Big One,” which has yet to happen. This data was taken from the [NOAA \(National Oceanic and Atmospheric Association\) website](http://www.noaa.gov).



# How much distance should be between primary & secondary data center locations?

For primary and secondary data center locations, many studies recommend that they be located no more than 60 miles apart due to a desire to actively synchronize applications between sites. Primary and secondary locations need only be logistically located a minimum distance that would allow for them to be serviced by separate substations. Distance is especially important in reducing failover time. Active/active applications reduce the time between failover to milliseconds, but require low enough latency for the workloads to properly perform.

## Looking at locations throughout Texas during “The Big One”

### Houston, Texas

North Houston lies inside the capped wind speed contour of 110-127mph. Per the Inland Wind Map from NOAA, even in the worst case scenario there is an upper limit of the wind speed that can exist that far inland, particularly at TRG’s Spring, TX data center location which is well inland even from Houston.

According to the National Hurricane Center’s [Saffir Simpson scale](#), in a category 5 hurricane nearly all trees will be snapped or uprooted and distribution lines downed. Wind speed decays as we move inland; given the 185mph wind load ratio of TRG we have a 100% guarantee of survival given a worst case scenario hurricane. Since the highest theoretical value we could ever see per NOAA is 127mph, our building remains overprepared by 145% compared to the theoretical maximum.

### College Station, Texas

College Station sits within a similar wind speed category as Houston for “The Big One” at 93-109mph. At this wind speed distribution lines will suffer the same damage as in Houston and power will be down for weeks to months.

### Austin, Texas

Austin lies within the same windspeed category as College Station. Even though it was common thought that Austin would be a good option for Disaster Recovery for Houston-based companies, they realistically are not prepared to face those windspeeds. In the case of “The Big One” they are facing very high wind speeds with little preparation, and if it does happen they will find themselves unqualified to provide true disaster recovery services.



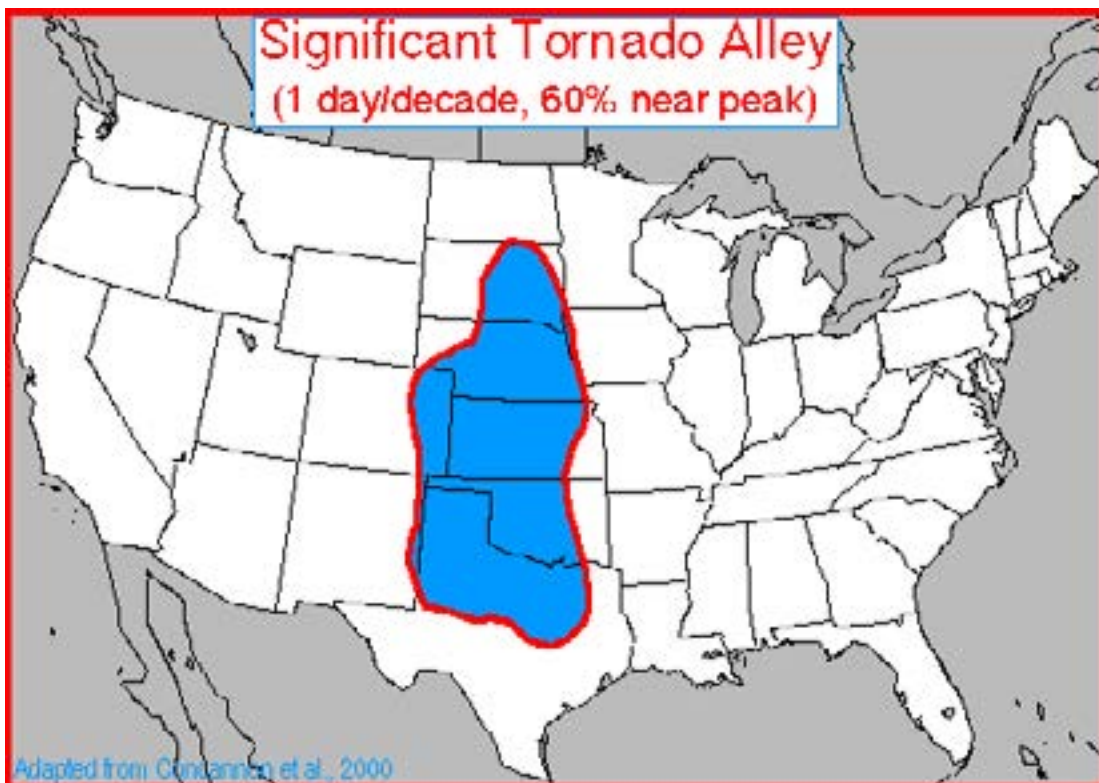
## Dallas, Texas

Dallas splits two wind speed contours during “The Big One”, with North West Dallas in the 59-75mph section and South East Dallas in the 76-92mph section. According to the [Saffir Simpson scale](#), these wind speeds can cause some damage to roofing, and extensive damage to power lines that could last several days. Meaning, facilities would need to have secured rooftop equipment and generators prepared to run for several days.

Dallas also faces another weather challenge in that they lie within “Significant Tornado Alley”, making them at risk for a high frequency of tornadoes each year. According to the [NOAA](#), 77% of tornadoes in the US are considered weak (EF-0 or EF-1) and about 95% of all US tornadoes are below EF-3 intensity. For a hardened datacenter, an EF0 tornado doesn’t matter, it’s significant tornadoes that keep us up at night. Even as a “weak” EF-1 tornado, wind speeds can reach 110mph. The worst part about tornadoes is their unpredictability. When the 5% of tornadoes that are >EF-3 hit, Dallas will simply be unprepared to outlast the wind speeds above 165mph, much less deliver disaster recovery services.

### Tornado Classification Scale


Weak	EF0, EF1	Wind speeds of 65 to 110 mph
Strong	EF2, EF3	Wind speeds of 111 to 165 mph
Violent	EF4, EF5	Wind speeds of 166 to 200 mph or more



## How TRG addresses these issues

TRG Datacenters was built specifically to meet the needs of Houston. Since we are a purpose-built data center and not a retro-fit, we were able to customize our wind load resistance. Our location lies within the capped wind speed contour of 110-127mph. TRG Datacenters is built to withstand wind speeds of up to 185mph, far meeting and exceeding the 127mph threshold in a category 5 hurricane.

According to the [Saffir Simpson scale](#) a high percentage of industrial buildings, such as retro-fit data centers, will be destroyed in a category 5 hurricane. They could suffer significant damage to roofing due to loss of rooftop equipment and any unreinforced masonry walls will fail which can lead to the collapse of the building. [Advanced Roofing](#) out of Florida states that “70% of roof damage following a hurricane is due to loose HVAC equipment rolling across the membrane that can cause many small holes.” TRG Datacenters has a 4-inch thick sloping leak-proof roof, 8-inch thick concrete reinforced walls, and no rooftop equipment or roof penetrations which eliminates the risk of rooftop damage.

 - TRG has our Infinifuel program to continue the supply of our generators for an unlimited number of hours for the duration of any outage.

