

A City Within A City: Houston's Disaster Relief Efforts To Help Evacuees Escaping From The Damage Caused By Hurricane Katrina

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Abstract

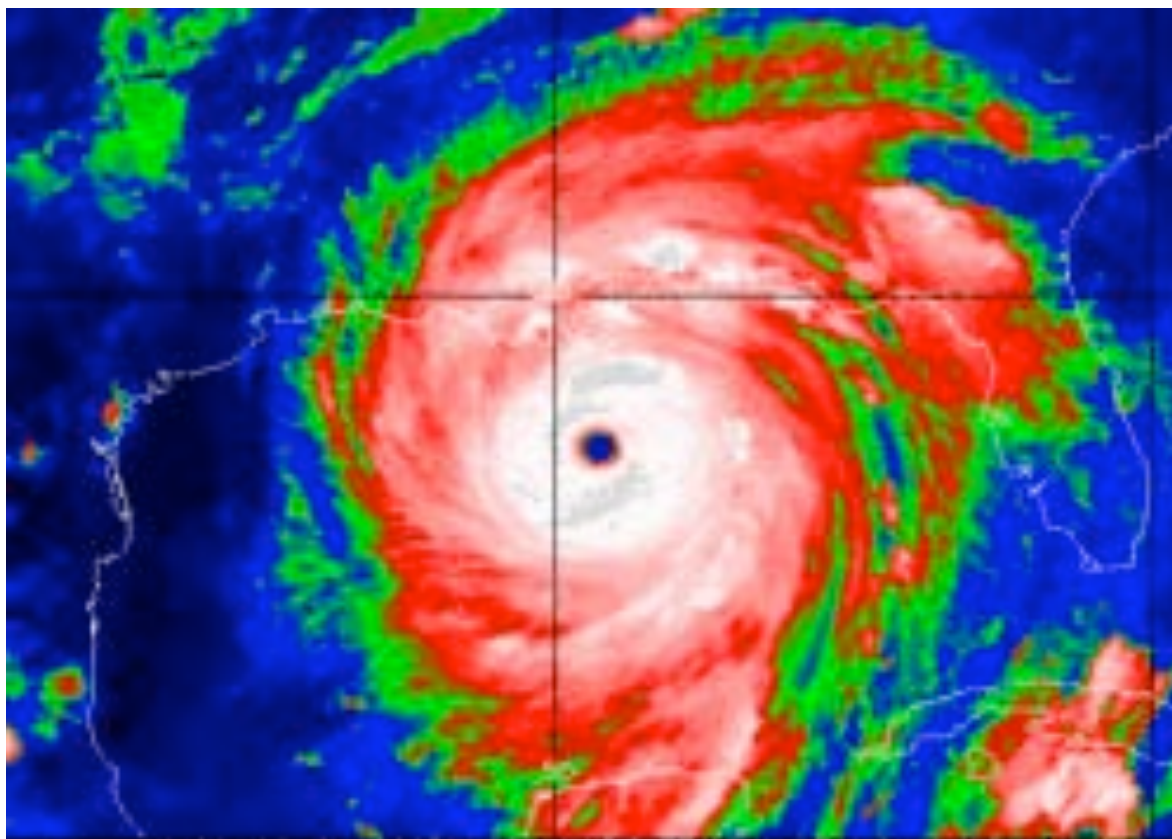
On August 29, 2005 The United States of America was struck by the worst natural disaster in its history. A category 4+ hurricane with winds up to 145 miles per hour made landfall in the region around the city of New Orleans and left behind massive destruction in an area reaching from New Orleans, Louisiana to Mobile, Alabama. While the full magnitude of loss of human lives and property is not assessed yet, it is estimated that over 1 million people were evacuated over the past few days since the hurricane struck.

This article describes the efforts by the city of Houston, Texas to accommodate ten thousands of evacuees in the first hours of this massive disaster relief effort. As of September 5th, 2005 approximately 30,000 evacuees were relocated to the city of Houston and were housed within the Astrodome, the Reliant Arena, the Reliant Center, and the George R. Brown Convention Center. On September 6th, 4,000 victims were scheduled to be transferred from this city within a city to 2 cruise ships in Galveston.

Introduction

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Figure 1: Hurricane Katrina



One day after the hurricane hit the Gulf Coast, the levee system on Lake Pontchartrain breached in 3 places and caused massive flooding in the area of New Orleans, putting about 80% of the city under water and forcing the evacuation of about 1 million people.

Figure 2: The city of New Orleans

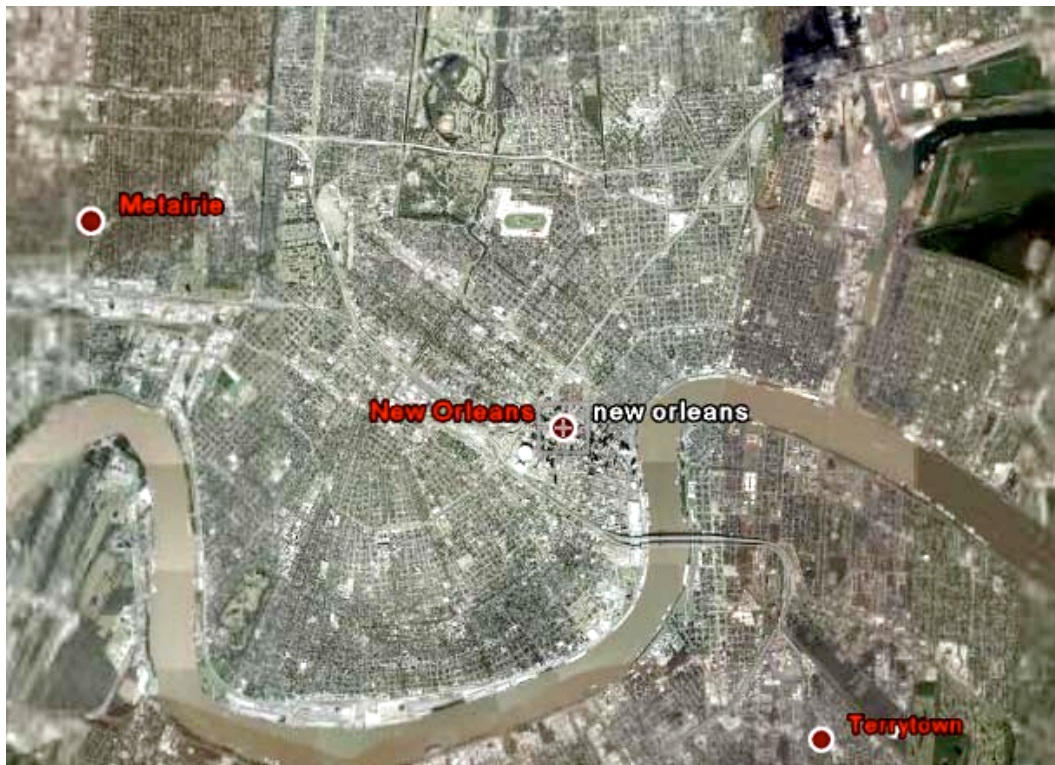


Figure 3: Lake Pontchartrain and New Orleans



While many were evacuated into the nearby region, it became quickly evident that most of the people would have to be moved to places outside the affected states. Houston, the 4th largest city in America, is located west of New Orleans and can be reached by car in about 6 to 7 hours (under normal circumstances). The authorities of the State of Texas and the City of Houston decided to welcome as many evacuees as possible and opened the Astrodome for temporary shelter.

Figure 4: The Gulf Coast region



The Astrodome was built in 1966 and was the first ballpark in the US with a roof. At the time it was called the 8th Wonder of the World. It was the park for the Astros, Houston's baseball team. The Astrodome is an 18-story building on 9 ½ acres of land close to the Texas Medical Center in Houston. The Dome was also known to be the first to use a special grass called Astroturf for indoor baseball and football games. The Astro Arena was added later to host other events. Both, Astrodome and Astro Arena have been home to the world famous Houston Rodeo for many decades. In 2002, a new stadium (Reliant Stadium) was built next to the Astrodome for Houston's new football team (Texans). Another complex with exhibition halls was added (Reliant Center). Three of the four facilities were now opened for the evacuees from the affected Gulf Coast regions.

Figure 5: The Houston Astrodome



Report

On Thursday September 1st, busloads of tired and exhausted victims of hurricane Katrina started to arrive at the Astrodome in Houston. Local authorities had estimated that the Dome could hold as many as 25,000 evacuees. However, the shelter access had to be temporarily denied to newcomers after the first 5,000 had arrived. The mass of people in need was just overwhelming and safety for those in the shelter could not be guaranteed. Prior to arrival of the buses, approximately 35,000 cots had been delivered to the Astrodome to provide someplace to sleep.

Within hours, a new shelter was opened in the Reliant Arena and the space in the Astrodome was expanded. It took about 12 hours to stabilize the situation and ensure that enough space, food, and water was available to all. On Friday night, an additional hall in the Reliant Center was opened as well as some space in the George R. Brown Convention Center close to downtown Houston. That night, the Reliant Park complex including the Astrodome, Reliant Arena, and Reliant Center housed 18,000 people. After three days, the shelters in Houston housed approximately 30,000 evacuees.

The population of Houston responded to the crisis with an outpouring of help and volunteerism. Thousands of volunteers came to the area and provided help to the victims. On September 5th, it became evident that 24,000 had volunteered their time and services to accommodate the evacuees.

Figure 6: Inside the Astrodome (Astrocity)



Figure 7: A view from the hallways above the Astrodome floor



Several non-medical services were set up within hours. SBC donated telephone stations and free air time for local and long distance calls to enable evacuees to contact their loved ones. Other areas included food stations and places to shower. Registration areas were opened to search for missing relatives and friends. Play areas for children were created. Donated clothes arrived in bags and boxes and had to be sorted before being handed out to the victims. The evacuees could place their orders by indicating the size of things they needed and volunteers would try to find the requested items and bring them to the clothing distribution places.

Several areas were designated to provide emotional support for people still under shock or suffering otherwise. By Friday evening, plenty of food and drink was available and many clothes had already been given to the people in need.

Figure 8: Evacuees in the Reliant Arena



Medical services were set up very efficiently. Each of the main shelters (Astrodome and Reliant Arena) had one major triage area. Physicians and paramedics also provided triage services to determine priorities as new buses arrived. Some of the most critical patients were unloaded directly into ambulances and transported to the nearby Ben Taub hospital in the Medical Center. The others were quickly searched by the security forces to find any weapons prior to entering the shelters. In the following hours, the police found six guns close to this security area. They were probably thrown away once the gun carriers realized that the police was searching for weapons. Many knives were confiscated as well.

Figure 9: Medical triage center and clinic in the Astrodome



A major medical clinic was opened in the Reliant Arena. Compartments separated by curtains represented different specialty clinics such as psychiatry, eye, gynecology, pediatrics, internal medicine, ear, nose and throat and services such as registration, laboratory and pharmacy services, and immunization clinics. Other services included a mobile pathology unit in a truck trailer.

Figure 10: Medical clinic within the Reliant Arena



Figure 11: Medical supply area



Physicians, nurses, and other healthcare professionals were able to register and were then assigned to their work places. By Friday evening, there were more healthcare volunteers than needed. The specialties of high demand were internal medicine and family practitioners. Besides treating minor scratches and bruises the main work load was to treat patients with chronic diseases such as diabetes, asthma, and hypertension. Many of the victims were without proper medication for over five days. A major activity for physicians was to write drug prescriptions to put patients back on their usual medication.

Summary

The disaster relief efforts provided by the State of Texas, the City of Houston, and the thousands of volunteers cannot be praised enough. Despite some capacity and safety problems in the first phase of the rescue operation the “city-within-a-city” became an example of what good preparation mixed with commitment of local government and admirable volunteerism of the population can do in such extraordinary and overwhelming relief operations. We are now nine days into this disaster and it is clear to everyone that this represents a tragedy of major proportion. A lot of work lies ahead and only time will be able to tell the entire story. Congratulations to all the helping hands who came together in the “city-within-a-city” for a job well done!