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HIGHER GROUND

A study finds that New Orleans has plenty of real estate above sea level that is being underutilized

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By Leslie Williams

A yearlong topographic and demographic study of New Orleans arrives this month like the latest installment of the television series "MythBusters" -- and may forever change the notion of the Big Easy as a below-sea-level city.

"Contrary to popular perceptions, half of New Orleans is at or above sea level," according to the study by Tulane and Xavier universities' Center for Bioenvironmental Research.

Yep, half.

And if you want to cling to other myths, such as Monkey Hill at Audubon Zoo being the highest spot in New Orleans, avoid the study's author, a celebrated research professor who years ago went house-hunting in Bywater with his wife, Marina, toting topographic maps.

"No, Monkey Hill is not the highest," said Richard Campanella, leaning over to review elevation data captured by LIDAR, a precise light imaging detection technology, to support his point. "It's 25.4 feet high; a hill in the Couturie Forest in City Park is 27.5 feet."

In the study, data captured with LIDAR from 1999 through 2001 were used to identify the heavily populated areas in the New Orleans area that are at and above sea level, replacing impressions with facts. In calculating the proportion of the city above sea level, sparsely inhabited areas such as Bayou Sauvage were not accounted for.

"Innumerable media reports following Hurricane Katrina described the topography of New Orleans as unconditionally below sea level," the study notes. "This oversimplification is inaccurate by half, and its frequent repetition does a great disservice to the city."

The study also shows land above sea level on the south shore is not concentrated in any one area, but sprinkled from the river to the lake.

On the at-and-above list are most of the terra firma in the New Orleans neighborhoods of greater Carrollton, River Bend, Audubon/University, Uptown, the Garden District, Lower Garden District, Irish Channel, the French Quarter, Treme, Bayou St. John, the Marigny, Bywater, Holy Cross, Algiers Point, McDonogh, Lakeshore, Lake Vista, Lake Terrace and Lake Oaks. Add to that the Warehouse and Central Business districts, portions of the 6th and 7th wards, Central City and Mid-City as well as areas along Gentilly Boulevard and Chef Menteur Highway in eastern New Orleans and terrain along the Mississippi River in Algiers, City Park Avenue and the Fair Grounds area.

The sea-level study references Jefferson and St. Bernard parishes as well, noting similar topography. However it provides a detailed overview only for the city.

Topic of discussion

In post-Katrina New Orleans, the above-sea-level areas have received little attention while much of the public discourse has centered on what to do about the land below sea level. With the study -- financed by a grant from the New Orleans-based Coypu Foundation -- Campanella, also the Bioenvironmental Research Center's associate director, aims to rectify that imbalance.

"Higher areas have been largely understudied," Campanella writes in the white paper. "The purpose of this investigation is to bring attention to above-sea-level New Orleans, measure and map it, and estimate how many people could theoretically reside there."

The study provides a satellite image of the city with red shading on areas that are at and above sea level but are vacant or underutilized. It identifies nearly 2,000 "vacant, unused, or lightly used parcels."

If these parcels were developed for residential living at 1960 population levels, they could become home for an additional 21,000 people, the study concludes. The city's population was then at its peak; 627,585 people lived in New Orleans, according to the 1960 census.

Decades later, the 2000 census counted 484,674 New Orleans residents. At that 2000-level density, the study estimates an additional 9,000 people could be settled on the vacant, unused or lightly used parcels.

"On this other side of this invisible hydrological line of sea level, we should not forget that we have a precious natural resource that actually comprises roughly 50 percent of the city's land area and roughly 50 percent of the metropolitan area's land area south of the lake (Pontchartrain)," Campanella said. "The goal of the study is not to opine on the future of the low-lying areas in any way, but to contribute to the discussion that we also have this other valuable resource."

Setting priorities

The study recommends that land at or above sea level be "prioritized for human habitation."

That's not to say every bit of high ground should be used for housing.

" 'Prioritized' means move it up on the list of important things that we need to do as a society," Campanella said. "It is not a declarative, absolutist recommendation."

"It's understood that port activity occurs along the riverfront and the riverfront comprises the highest areas in town, and if we want the port here we're going to have to give up some potential residential elbow room for the port to operate," he said. But that "does not justify the large numbers of open parcels in high areas, such as along Chartres Street in Bywater, that are empty and apparently underutilized."

The study's author recommends that officials facilitate and encourage residential development of the areas when practical, rezoning some parcels if necessary. Government would be wise to consider mending tears in the historical urban fabric "by filling in these open spots, open parcels, torn-down houses, etc.," he said.

Of the city's 181 square miles, the study focuses only on land where most people live, a section of roughly 84 square miles. It excludes the sparsely populated far eastern edges of New Orleans -- an area just east of Interstate 510 to the St. Tammany Parish border. The predominantly Vietnamese-American neighborhood of Village de l'Est is the exception; it is included in the study. Also excluded is the undeveloped swath of land south of the Intracoastal Waterway below eastern New Orleans.

Altered geography

The study area is limited to the managed terrain in which most New Orleanians reside, Campanella said.

"This city is so . . . altered that to speak of a natural land surface is to not recognize just how much humans have altered every inch of this earth," he said.

The above-and-below mix in New Orleans mirrors the more populated parts of the city's neighboring parishes, according to the study.

"LIDAR elevation data show that 51 percent of the terrestrial surface of the contiguous urbanized portions of Orleans, Jefferson, and St. Bernard parishes lie at or above sea level (with the highest neighborhoods at 10-12 feet above mean sea level), while 49 percent lies below sea level, in places to equivalent depths."

In New Orleans, much of the urban engineered landscape rests between Lake Pontchartrain, which is slightly above sea level, and the Mississippi River, which flows about four feet above sea level in late summer and about 12 to 14 feet during the spring thaw. The lake, river and a host of other factors are the reasons the height of the land is not the last word.

After Katrina smacked the city, floodwaters soaked above- sea-level parts of the Holy Cross neighborhood, but did not inundate parts of Bywater at roughly the same elevation. The location and severity of levee failures determined which of those areas flooded. The same was true for below-sea-level areas on different sides of the 17th Street Canal. Floodwaters spewed into Lakeview from a collapsed section of the floodwall on the Orleans side while some low-lying parts of Metairie remained dry because they were behind the Jefferson Parish side of the floodwall, which held.

Elevation, ruptured levees, collapsing flood walls, failed pumps, clogged catch basins and the overtopping of levees all affect whether a particular spot floods and how much.

Elevation, though, is a variable "we can control," he said.

"Consider a house with a classic New Orleans basement, a raised structure with one floor directly on the ground with the main space above -- about eight feet above -- maybe built in the 1920s," he said. "Do you use the top for storage and live at the bottom? Or, do you use the bottom for storage and live at the top?"

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Leslie Williams can be reached at williams@timespicayune.com or at (504) 826-3358.