

LAST LINE OF DEFENSE: HOPING THE LEVEES HOLD

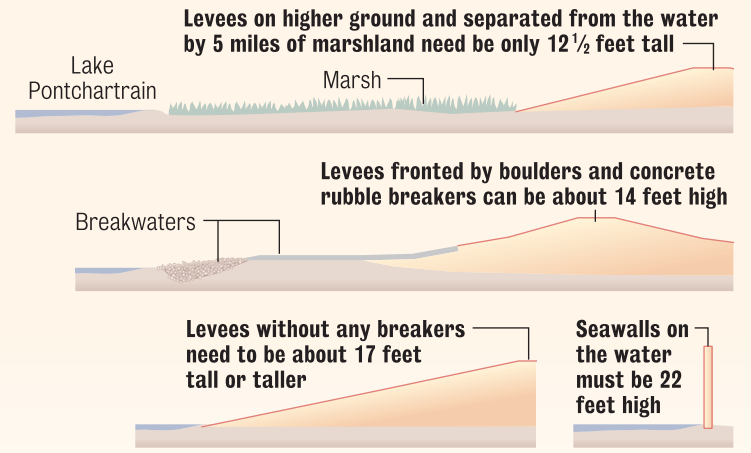
Army Corps of Engineers officials say hurricane levees in the New Orleans area will protect residents from a Category 3 hurricane moving rapidly over the area. But computer models indicate even weaker storms could find chinks in that armor.

BARRIERS OF EARTH AND CONCRETE

Levees and floodwalls that protect against flooding from both the Mississippi River and hurricanes are built by the Army Corps of Engineers and are maintained by local levee districts. The corps and the local districts share the construction cost of hurricane levees, while the Mississippi River levees are a federal project. Local levee districts also build and maintain nonfederal, lower-elevation levees with construction money from each district's share of property taxes and state financing.

HEIGHT ISN'T EVERYTHING

Different factors permit Lake Pontchartrain levees of varying elevations to withstand an 11½-foot storm surge plus several feet of waves:

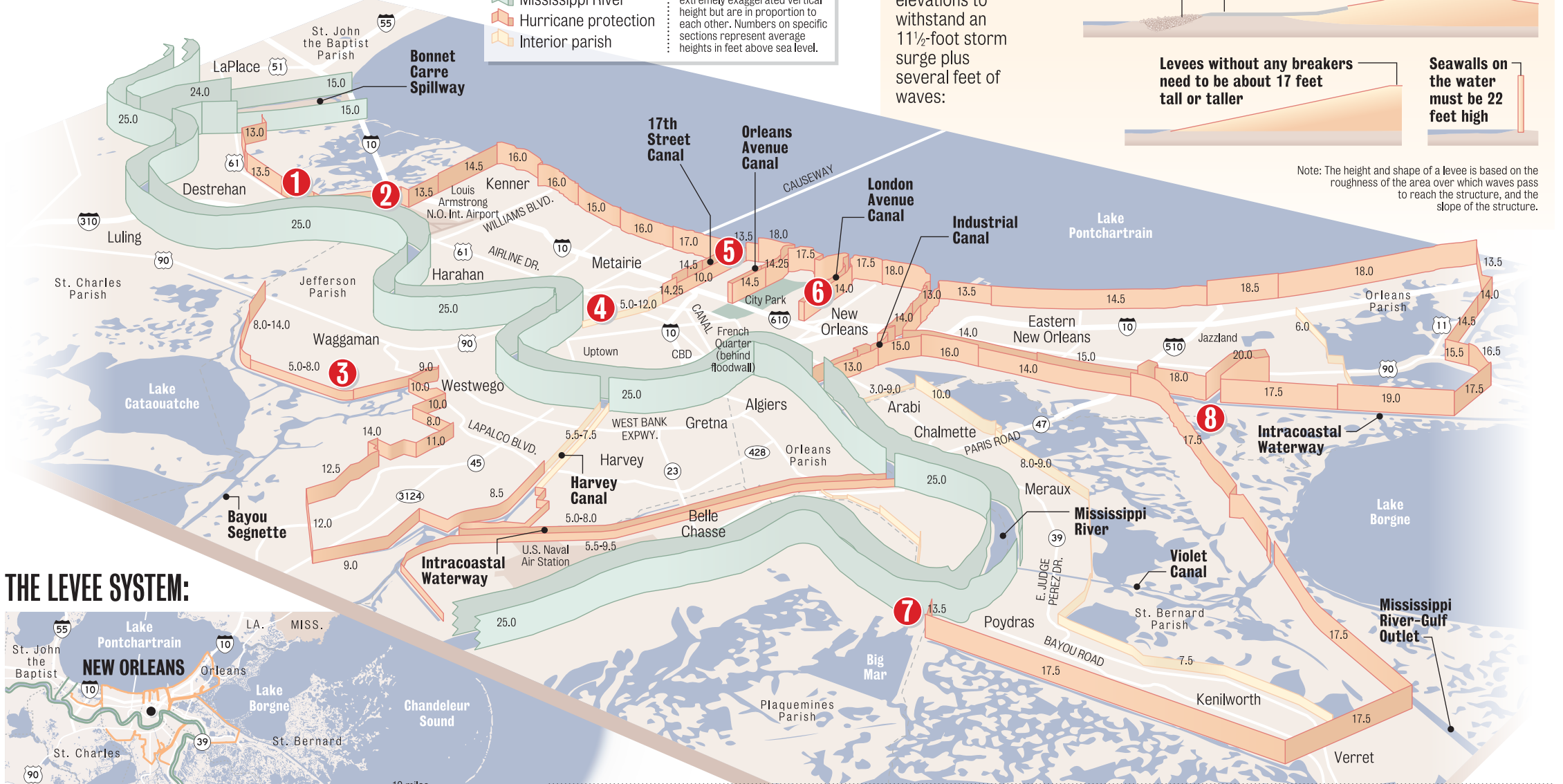


Note: The height and shape of a levee is based on the roughness of the area over which waves pass to reach the structure, and the slope of the structure.

LEVEES AND FLOODWALLS

- Mississippi River
- Hurricane protection
- Interior parish

Notes: Levee and floodwall elevations are drawn with an extremely exaggerated vertical height but are in proportion to each other. Numbers on specific sections represent average heights in feet above sea level.



THE LEVEE SYSTEM:



FARTHER SOUTH

Residents and businesses in developed areas along bayous and the Mississippi River have successfully argued that the benefits of building levees around their communities outweigh the costs of construction.

LAROSE TO GOLDEN MEADOW LEVEE

This 40-mile ring levee encircles residential and commercial developments along Bayou Lafourche. Parts of the levee are being raised to counteract subsidence.



NEW ORLEANS TO VENICE LEVEES

There are 37 miles of levees in this project on both sides of the Mississippi River between Phoenix and St. Jude to the north and Bohemia and Venice at the southern end of the river. Different pieces of the levee are 60 percent to 99 percent complete.



LEVEE HOT SPOTS AROUND NEW ORLEANS:

1 ST. CHARLES PARISH



Construction of a new drainage structure west of Louis Armstrong International Airport is part of an incomplete 10-mile levee from the Bonnet Carre Spillway to the parish line, five miles inland from Lake Pontchartrain. Computer models indicate storm surge from smaller hurricanes would flood populated areas toward the river through gaps.

2 ST. CHARLES-JEFFERSON PARISH LINE



This 5-foot to 10-foot wall of sandbags and sheet piling runs south of Airline Drive to the Mississippi River levee near the airport. Surge water from the lake could pool along the river levee and pour over this barrier into Jefferson Parish and New Orleans, according to computer models.

3 WEST BANK



More than 60 miles of levees and floodwalls from east of the Harvey Canal to west of Lake Cataouatche – including this stretch of completed floodwall and yet-to-be-raised levee along Bayou Segnette State Park – are years from completion. Small hurricanes can push water from Timbalier and Barataria bays into West Bank neighborhoods.

4 JEFFERSON-ORLEANS PARISH LINE



Chesterfield Street passes through a low levee from Monticello Avenue in Jefferson Parish into New Orleans near the city's water plant. Computer models indicate this is the likely spot for floodwater to enter the city from St. Charles and Jefferson parishes during hurricanes.

5 JEFFERSON-ORLEANS PARISH LINE



The Hammond Highway bridge over the 17th Street Canal is being replaced with a new, hurricane-resistant structure. Huge sandbags are kept nearby to plug this hole in the hurricane protection for Jefferson and Orleans parishes.

6 NEW ORLEANS



The Filmore Avenue bridge over the London Avenue Canal is being replaced with a new span with floodwalls. Until its completion, only sandbags will stop hurricane surge from pouring into city neighborhoods.

7 ST. BERNARD-PLAQUEMINES PARISH LINE



A computer model indicates storm surge could overtop a V-shape area where levees meet at the parish line near the Caernarvon Freshwater Diversion Project along the east bank of the Mississippi River.

8 EASTERN NEW ORLEANS AND ST. BERNARD PARISH



Computer models indicate surge from Lake Borgne might rise in the Mississippi River-Gulf Outlet and overtop New Orleans levees near the Paris Road bridge and a section of levee in St. Bernard during a hurricane.

Sources: Army Corps of Engineers, New Orleans District; Orleans Levee District; East Jefferson Levee District; West Jefferson Levee District; Lake Borgne Basin Levee District; Plaquemines Parish Levee District
Research: Emmett Mayer III and Mark Schleihten

Staff graphic by Emmett Mayer III/emayer@timespicayune.com
STAFF PHOTOS BY ELLIS LUCIA, ALEX BRANDON AND DEVAUNSHI MAHADEVIA