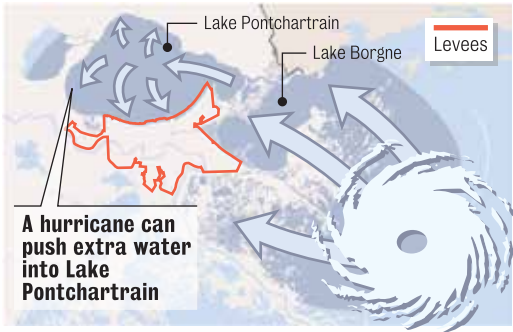


# HEADING HURRICANES OFF AT THE PASS

One of the most important components of the rebuilding of the New Orleans metropolitan area is improved protection from the most powerful hurricanes

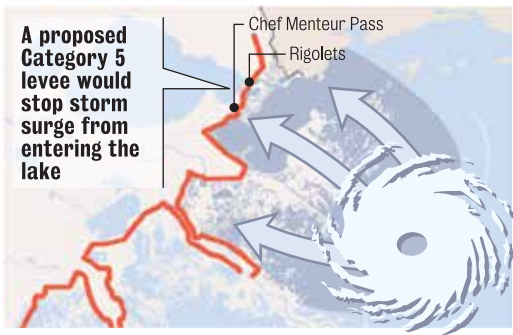
## PRE-KATRINA

After Hurricane Betsy hit in 1965, populated areas were surrounded by levees designed to withstand a fast moving Category 3 hurricane. But areas around Lake Pontchartrain and Lake Borgne lack the extra protection given to the West Bank by miles of marshland, and have greater exposure to a storm surge from Lake Pontchartrain.



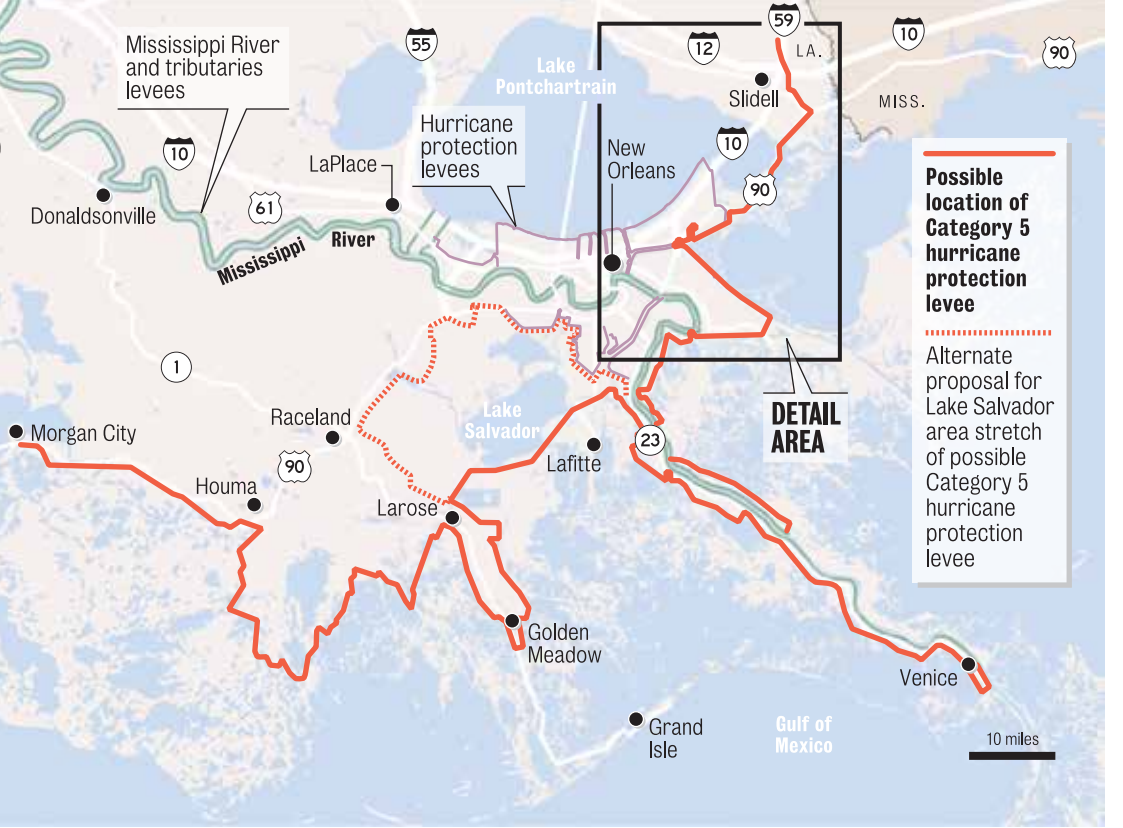
## POSSIBLE POST-KATRINA

One concept to offer greater protection to New Orleans is to construct a Category 5 hurricane levee across the Rigolets and Chef Menteur Pass, areas where storm surge from the Gulf enters into Lake Pontchartrain.



# THE GREAT WALL OF LOUISIANA?

One idea to offer Category 5 hurricane protection to most of southeast Louisiana, is to improve and extend the levee protection area from Slidell to Morgan City. Levees that currently exist would be improved and new levees would be built with structures that allow boats and water to pass through but that could also be closed to hold back a hurricane's surge.



# STOPPING THE SURGE

Although still working on the final plan, the Army Corps of Engineers said it probably will use a system of high levees and floodgates in building a Category 5 hurricane protection system for the New Orleans metro area. Here are some of the possible tools expected to be used:

## CATEGORY 5 PRICE TAG

Estimated costs of St. Tammany to Caernarvon segment

Construction of levee sections:

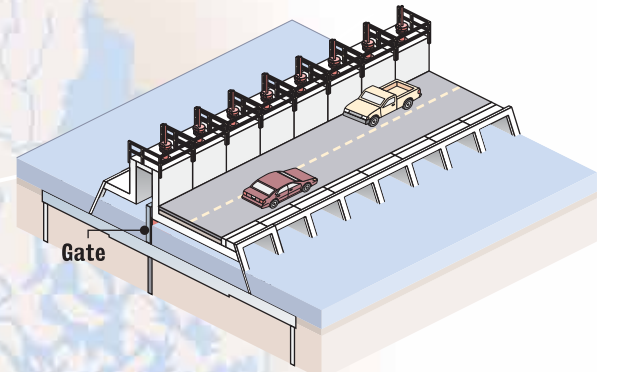
- 1 Slidell through Rigolets Pass complex \$926.5 million
- 2 South of Rigolets Pass through Chef Menteur Pass complex \$336.6 million
- 3 South of Chef Menteur Pass through Mississippi River-Gulf Outlet sector gate \$168.5 million
- 4 South of MR-GO sector gate through the Chalmette area floodwalls \$170.5 million

<b>Total construction</b>	<b>\$1.602 billion</b>
Engineering and design	\$240.3 million
Supervision and administration	\$192.3 million
<b>TOTAL ESTIMATED COST</b>	<b>\$2.035 billion*</b>

- Possible levee
- gate location

## SLUICE GATE

Located across smaller canals and natural waterways, sluice gates typically are used to control water levels. In this case they probably would remain open until a hurricane threatened. A newer version of a sluice gate is the so-called "leaky levee" which is a levee that has openings to allow free flow of water and marine organisms, but is closed when a storm approaches.

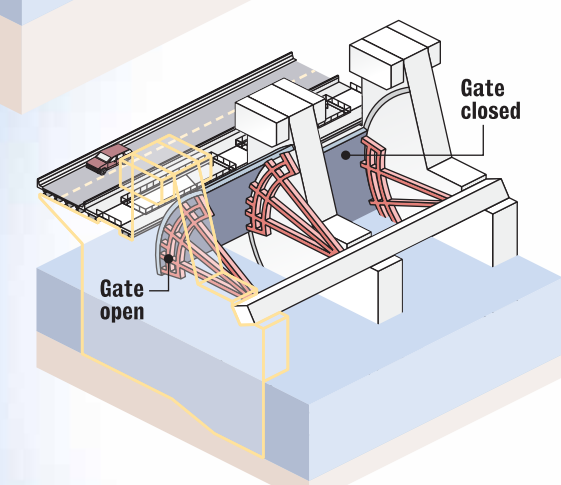
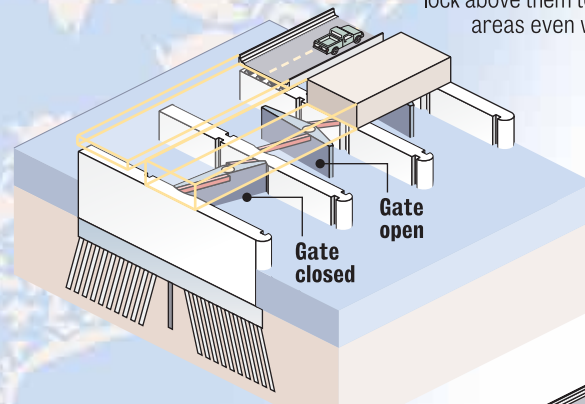


## BUTTERFLY AND TANTIER GATES

Large devices to be used across major passes and channels such as Pass Rigolets that handle essential shipping. Early plans call for a combination of these two structures across the pass with a lock above them to allow shipping access to vital areas even when the pass was closed.

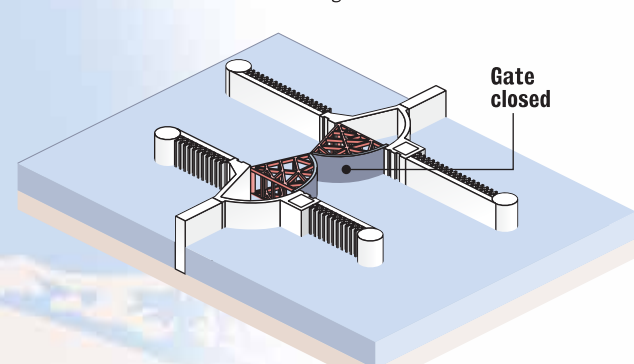
**Butterfly Gate (left):** Has many sections that can be automatically closed when water begins to flow in the opposite direction

**Tainter Gate (below):** Contains a number of sections with rounded gates that can be raised or lowered.



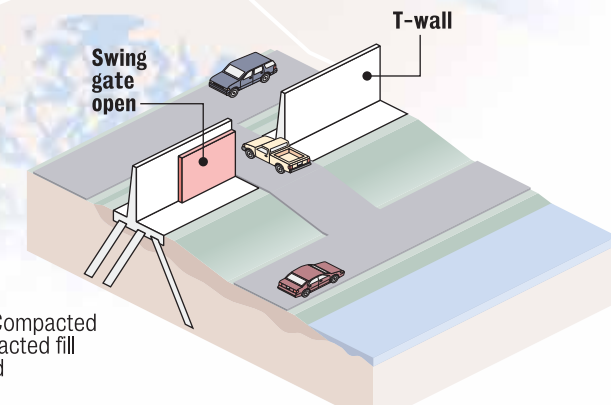
## SECTOR GATE

Proposed for larger, deeper waterways that handle boat traffic. Once closed they could not be reopened until the storm surge abated.



## U.S. 90 T-WALL

Would be built along a 37,500-foot section of U.S. 90, running from the Rigolets to Chef Menteur Pass. Swing gates at several points along the wall will allow access for roads to camps and residences built outside the levee system.



## HIGHER EARTHEN LEVEES

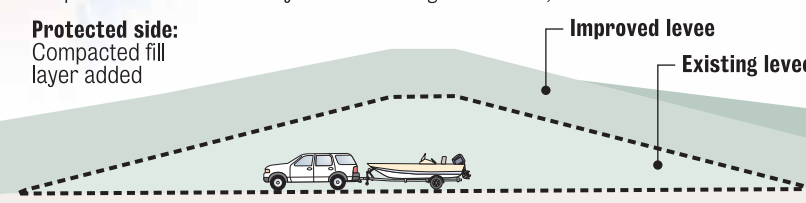
The size of a Category 5 levee would vary depending on the hydrology of the location, but corps officials estimate they could be as high as 28 feet, and as wide as 257 feet.

**Protected side:** Compacted fill layer added

**Improved levee**

**Existing levee**

**Flood side:** Compacted and uncompacted fill layers added



\*Estimates do not include environmental mitigation, utility and pipeline relocations or real estate costs.