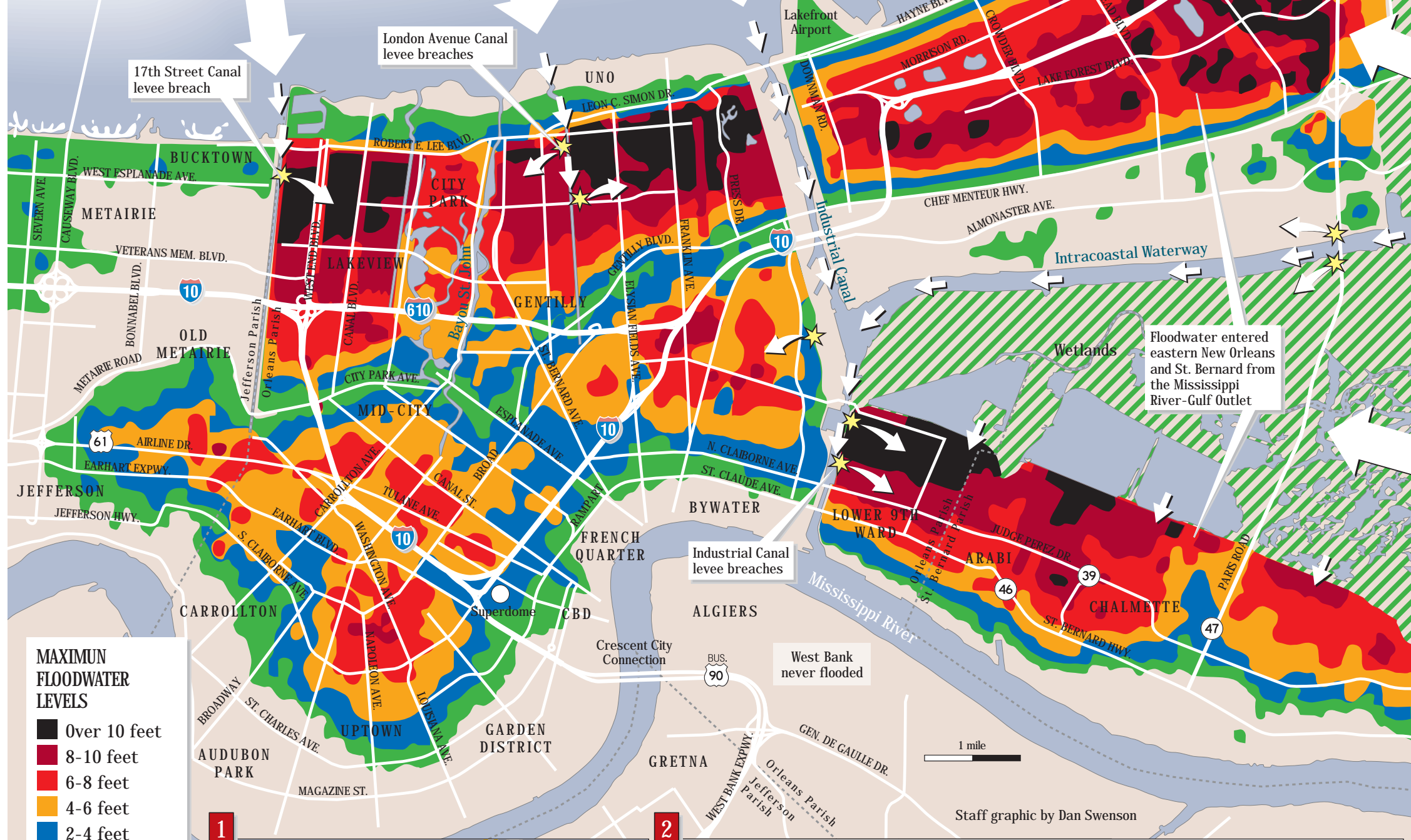


# MULTIPLE FAILURES

From poor design, to construction not matching plans, to levees not high enough to withstand the storms they were designed for, man-made weaknesses in the hurricane protection system failed metro New Orleans on August 29.



**MAXIMUM FLOODWATER LEVELS**

- Over 10 feet
- 8-10 feet
- 6-8 feet
- 4-6 feet
- 2-4 feet
- 0-2 feet
- Not available

**OTHER KEYS**

- Levee breach
- Storm surge/ water flow
- Levees topped with concrete floodwalls
- Earthen levees

**1 EARLY MORNING, MONDAY**

A towering storm surge ahead of Katrina channeled down the MR-GO, gaining speed and height as it made its way into St. Bernard Parish and the Lower 9th Ward. The earthen levees that line the MR-GO were overtopped by a surge far higher than was anticipated for a Category 3 storm, while the concrete walls along the Industrial Canal were breached.

**2 MID-MORNING, MONDAY**

At two points along the London Avenue Canal and one point along the 17th Street Canal, concrete walls atop earthen berms were simply pushed aside by the pressure of the water backing into the canals from Lake Pontchartrain. Evidence suggests that too-shallow pilings were driven into soft, peaty soils, allowing water to undermine the levees from below.

Note: Maximum water levels at specific points may vary greatly as topography can change drastically, for example from any given street to any given house foundation.  
Sources: C&C Technologies Survey Services, www.mapper.ctechnol.com/floodmap.php, LSU Hurricane Center

Staff graphic by Dan Swenson