

Tiger of the Air

The Incredible Tornado of March 27, 1890

Louisville, Kentucky

March 27, 1890

In 1937 the Ohio River crept out of its banks and gradually washed over the city, allowing most residents to walk out of harm's way...

In 1974 a tornado touched down near the State Fairgrounds and slashed northeast through mile after mile of parks and subdivisions, however with very little loss of life...

But in 1890 a storm so terrible, so vicious, ripped into the city with such immediacy that no one in its path had time to escape. Dozens of lives were extinguished in a matter of minutes.

The tornado's ferocity left a gash both across Louisville and in the hearts of those it terrified on that early spring day so long ago.



The day after the storm, the city's newspaper called the tornado a "whirling tiger of the air."

Let's Set the Scene

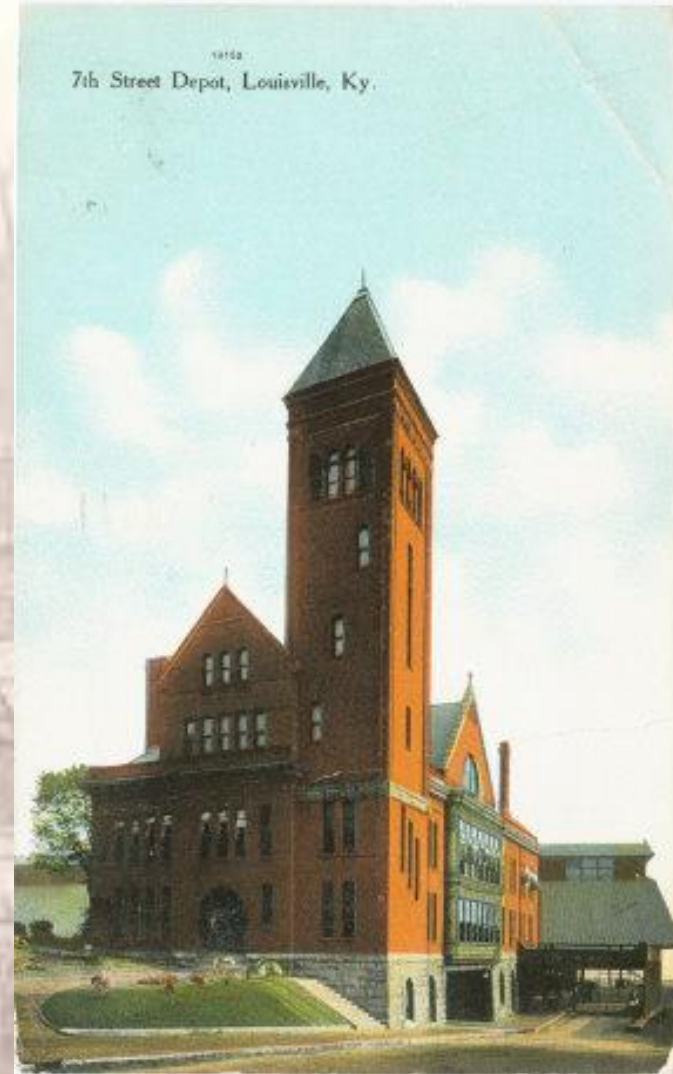
In 1890, Louisville was the 20th largest city in America. With a population of 161,129 it was larger than Indianapolis, Denver, Nashville, and Atlanta.

The Commerce Club Building, on the northwest corner of Fourth and Main, opened its doors on January 1. Towering 10 stories and 162 feet above street level, it was the tallest building in Kentucky and would remain so until the turn of the century.



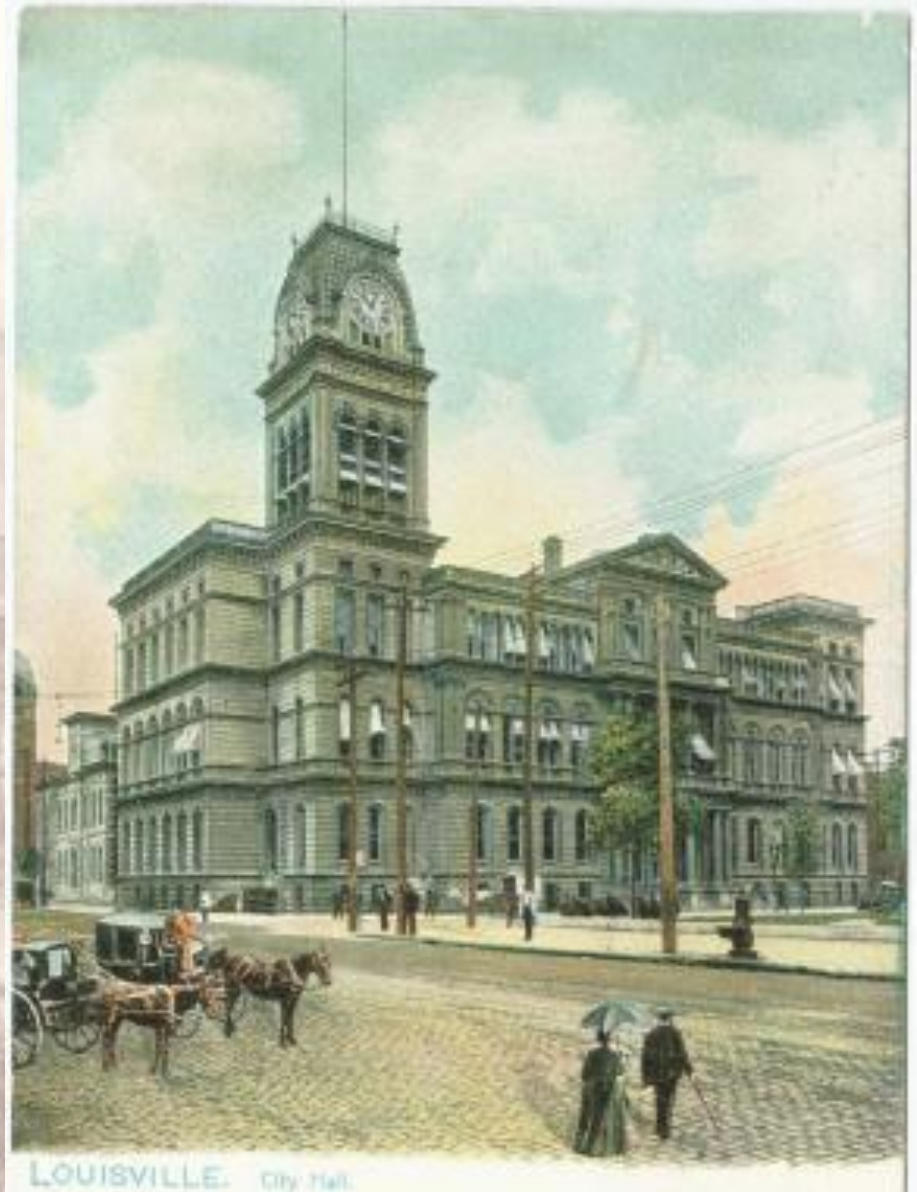
Louisville in 1890

The Union Depot on Seventh Street, more commonly known as Central Station, was partially under construction at the time of the tornado. As it turned out, the storm would further delay the structure's completion...



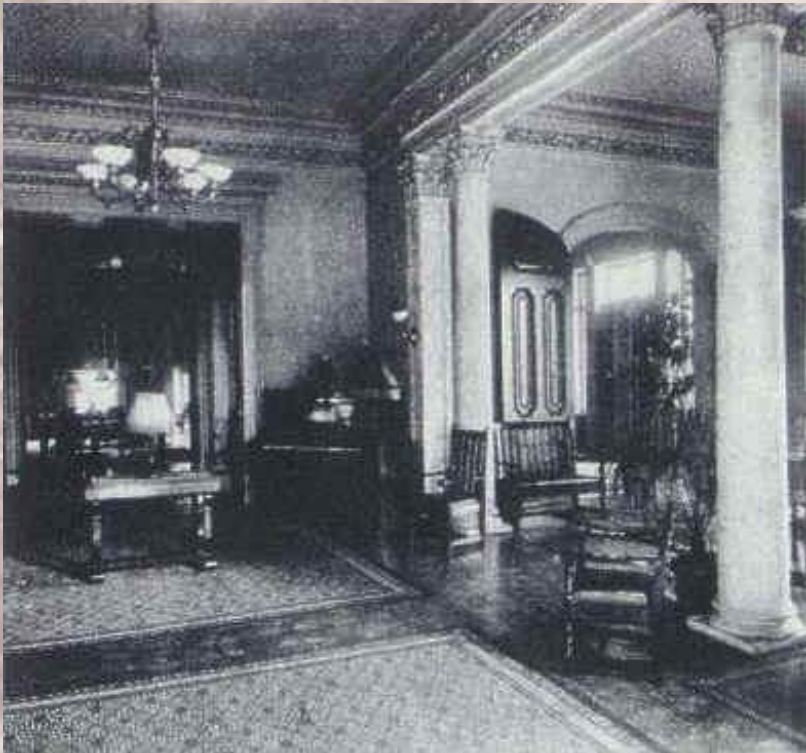
Louisville in 1890

City Hall and the Court House are at the corner of Sixth and Jefferson today, just as they were when the swirling storm missed them by just one city block in 1890.



Louisville in 1890

The Ford Mansion, built in the 1850s, stood at Second and Broadway.



Louisville in 1890

The brand new U.S. Post Office, just one year old at the time of the storm, towered over the intersection of Fourth and Chestnut.



Louisville in 1890

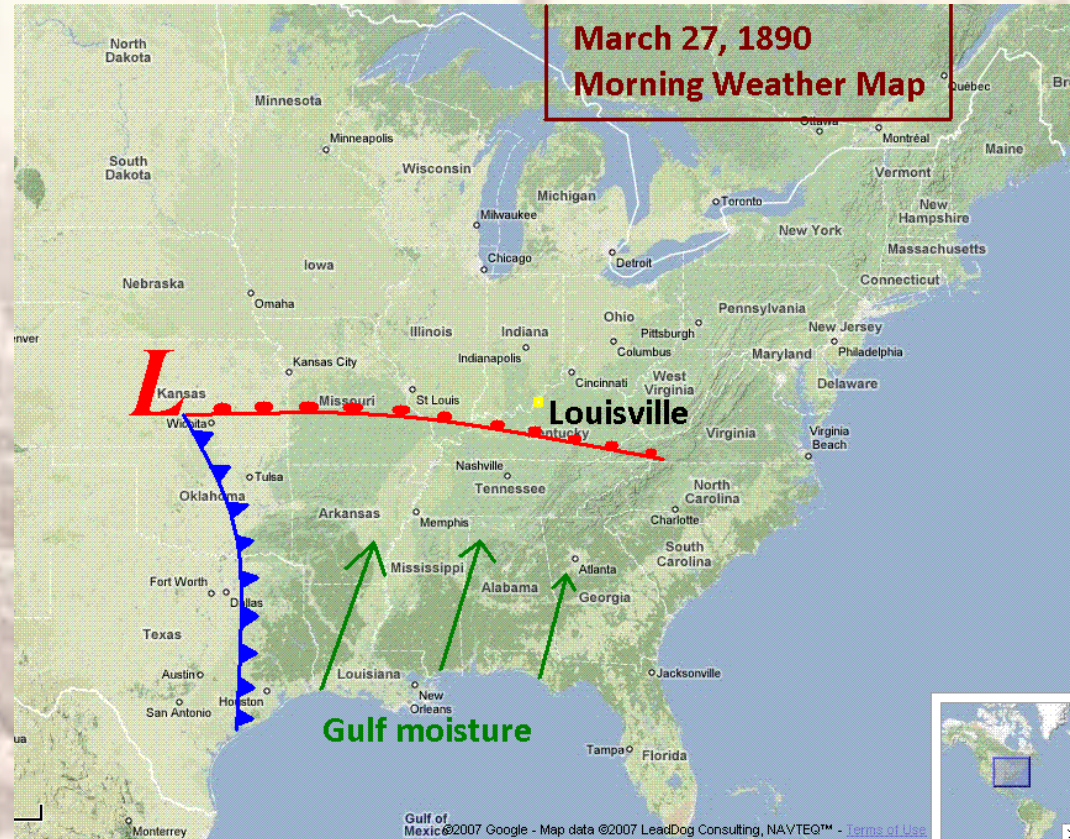
The Warren Memorial Presbyterian Church's steeple scraped the sky at Fourth and Broadway.



Meteorological Stage

Early on the morning of the 27th, a deep low pressure system was spinning over central Kansas. A warm front reached to the east, splitting Kentucky in half length-wise. A cold front hung to the south into Texas.

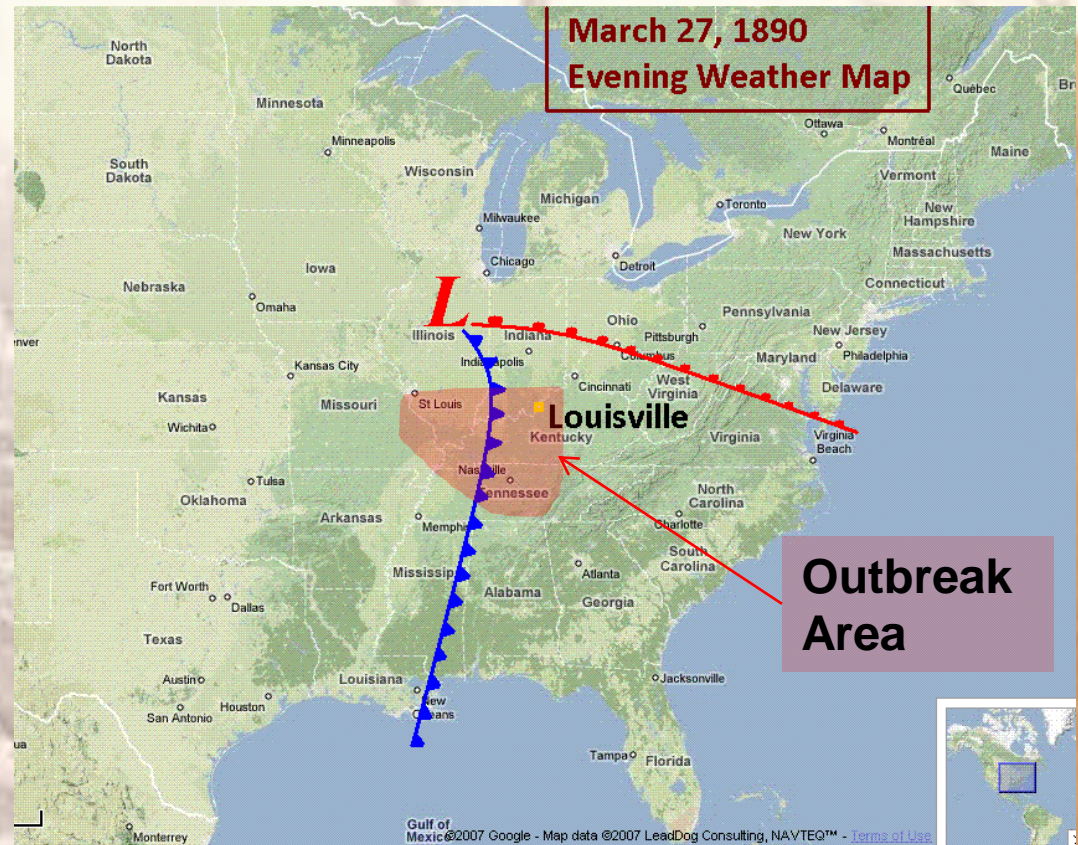
The counter-clockwise turning of the Kansas low brought plenty of moisture northward from the Gulf of Mexico. As the moisture interacted with the low and its fronts, showers and storms broke out.



Meteorological Stage

The low over Kansas deepened and headed northeast into central Illinois by evening. As it did so, its cold front advanced into the Mississippi River valley. As the front encountered a very moist and unstable atmosphere that afternoon, numerous supercell thunderstorms exploded from southeastern Missouri into Illinois, Indiana, Kentucky, and Tennessee.

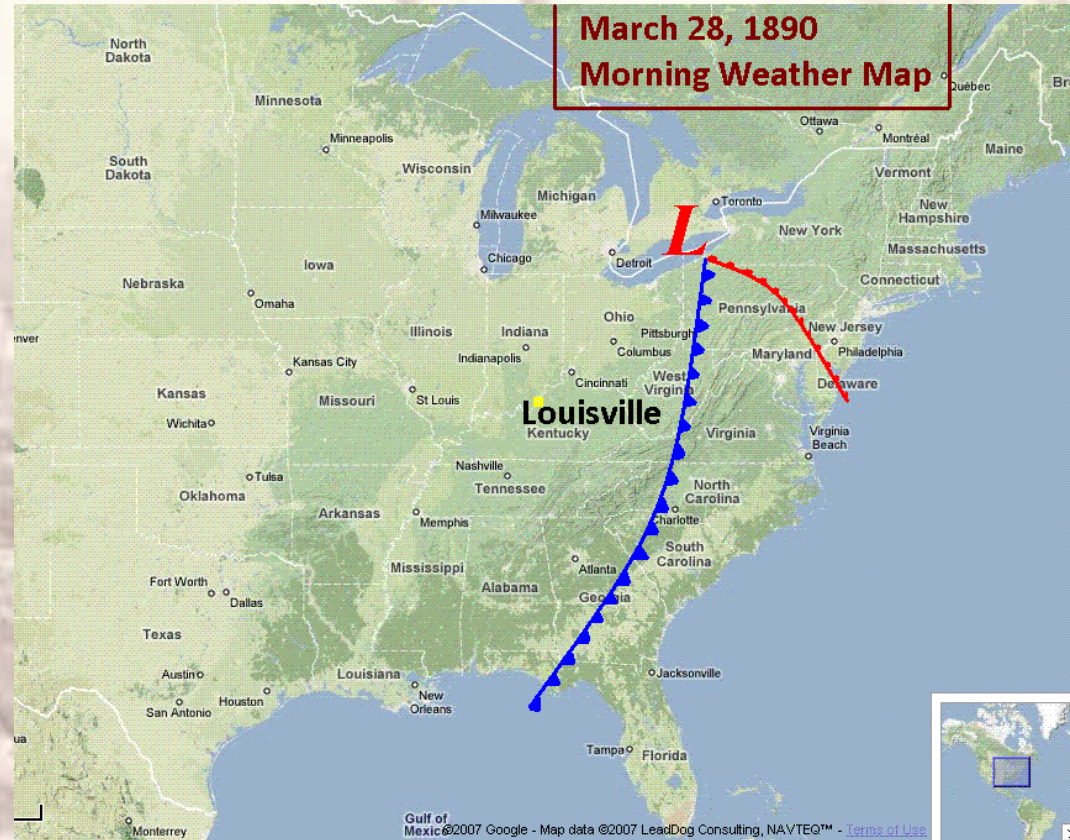
The first tornadoes developed south of St. Louis around 3pm. As the outbreak spread to the east, additional tornadoes struck. The final twisters occurred east of Nashville around 10pm. Louisville was near the eastern edge of the outbreak, with its tornado disaster taking place about 9pm.



Meteorological Stage

The murderous storm system was well to the east by early the next morning. No additional large tornadoes occurred with the system as it approached the East Coast.

It would be 27 years before the Louisville area would be struck by another tornado of a magnitude similar to the twister of March 27, 1890 (the deadly New Albany Tornado on March 23, 1917).



Meteorological Stage

Louisvillians, 76 of whom would experience their final day that March 27th, woke up to a dreary, cool morning. With the city on the north side of the warm front, light rain was falling from cloudy skies with temperatures in the middle 40s and a southeast wind around 9 mph.

After the warm front surged north into Indiana, temperatures rose quickly. By around 7 o'clock that evening, less than two hours before the disaster, temperatures had risen into the middle 60s with a southeast wind of nearly 20 mph. Rain was falling from low clouds streaming rapidly from southeast to northwest across the sky.

When the tornado hit, it was out of sight of the city's official weather observers, and the strongest wind at the weather station was only 36 mph.

LOUISVILLE KY
 ORIGINAL RECORD OF METEOROLOGICAL OBSERVATIONS made at _____, during the Month of March, 1890
 Number of station barometer 469; its correction, less inch.

R. F. M. THE MERIDIAN TIME, 47 LOCAL TIME.

Date	POSITION.				TEMPERATURE.				WIND.				CLOUDS.				State of weather.	Barometer.
	Observed reading.	Corrected for barometer.	Corrected for sea level and temperature.	Corrected for station elevation.	Bar. at sea level.	Temp. in shade.	Temp. in sun.	Temp. at surface of earth.	Max.	Min.	Dir.	Force.	Height of clouds.	Direction.	Amount.	Time of day.		
1	60.24750	60.24750	60.24750	60.24750	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
2	60.24800	60.24800	60.24800	60.24800	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
3	60.24850	60.24850	60.24850	60.24850	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
4	60.24900	60.24900	60.24900	60.24900	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
5	60.24950	60.24950	60.24950	60.24950	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
6	60.25000	60.25000	60.25000	60.25000	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
7	60.25050	60.25050	60.25050	60.25050	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
8	60.25100	60.25100	60.25100	60.25100	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
9	60.25150	60.25150	60.25150	60.25150	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
10	60.25200	60.25200	60.25200	60.25200	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
11	60.25250	60.25250	60.25250	60.25250	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
12	60.25300	60.25300	60.25300	60.25300	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
13	60.25350	60.25350	60.25350	60.25350	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
14	60.25400	60.25400	60.25400	60.25400	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
15	60.25450	60.25450	60.25450	60.25450	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
16	60.25500	60.25500	60.25500	60.25500	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
17	60.25550	60.25550	60.25550	60.25550	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
18	60.25600	60.25600	60.25600	60.25600	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
19	60.25650	60.25650	60.25650	60.25650	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
20	60.25700	60.25700	60.25700	60.25700	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
21	60.25750	60.25750	60.25750	60.25750	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
22	60.25800	60.25800	60.25800	60.25800	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
23	60.25850	60.25850	60.25850	60.25850	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
24	60.25900	60.25900	60.25900	60.25900	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
25	60.25950	60.25950	60.25950	60.25950	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
26	60.26000	60.26000	60.26000	60.26000	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
27	60.26050	60.26050	60.26050	60.26050	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
28	60.26100	60.26100	60.26100	60.26100	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
29	60.26150	60.26150	60.26150	60.26150	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
30	60.26200	60.26200	60.26200	60.26200	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9
31	60.26250	60.26250	60.26250	60.26250	42.0	42.0	42.0	42.0	42.0	42.0	SE	9	10	10	10	10	Cloudy	46.9

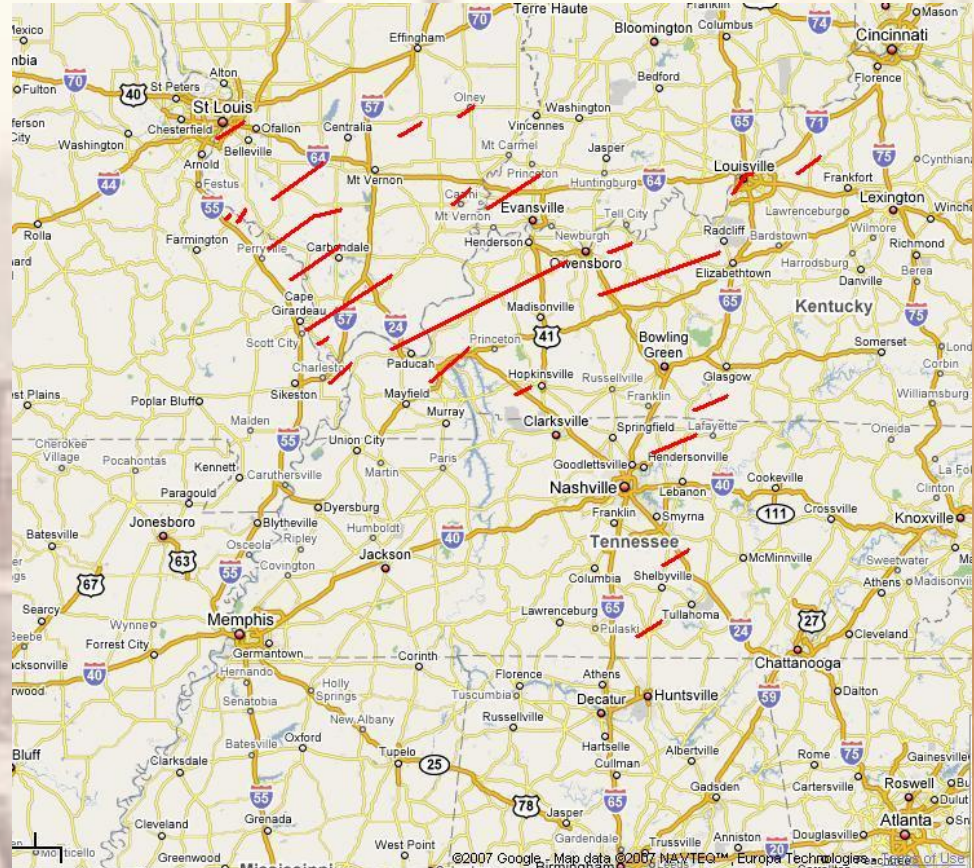
The actual hand-written observation form from March 1890

Outbreak!

The tornado outbreak of March 27, 1890, was one of the most prolific, deadly, and damaging to ever strike the middle Mississippi and lower Ohio Valleys.

In a triangle roughly bounded by Saint Louis, Louisville, and Huntsville, no fewer than two dozen tornadoes of *at least F2 strength* raked across the countryside. Many more weaker tornadoes, records of which have been lost to time, may have struck as well.

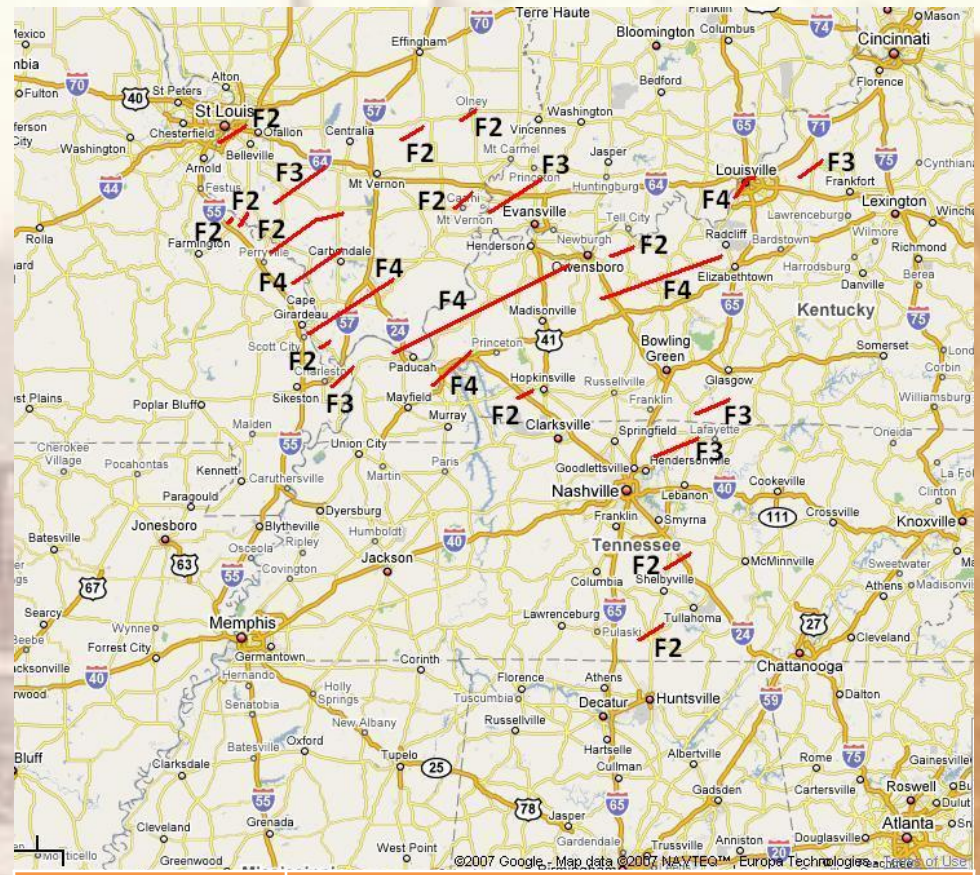
At least 146 lives were taken by the tornadoes, with over half of them in Louisville alone.



Outbreak!

Six of the tornadoes produced F4 damage along their paths. Many of the twisters remained on the ground for several miles, though some of the very long track tornadoes plotted here were probably tornado families, where a new tornado touches down just ahead of one that is dissipating. Using old records such as those found in newspapers, it can be extremely difficult to separate the members of a tornado family.

As terrible as the outbreak was, it could have been much worse. In the map on the right, note the very near misses at Saint Louis, Paducah, and Owensboro.

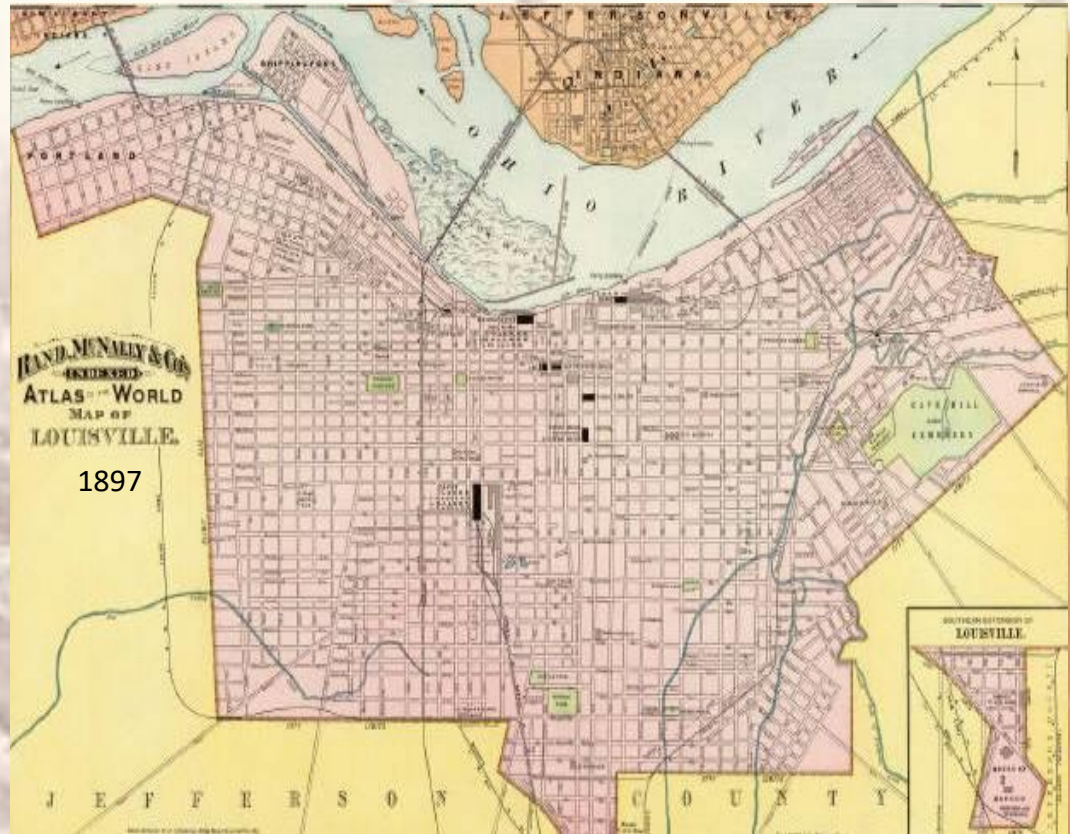


Fujita Scale Ranking	Description
F0	Light damage. Winds below 73 mph.
F1	Moderate damage. Winds 73-112 mph.
F2	Considerable damage. Winds 113-157 mph.
F3	Severe damage. Winds 158-206 mph.
F4	Devastating damage. Winds 207-260 mph.
F5	Incredible damage. Winds more than 261 mph.

The City

Louisville today is quite different from the city that existed in the late 19th Century. The area currently inside the Watterson Expressway was the entire city back in 1890.

The demographics of the area were quite different as well. The very great majority of the area's residents lived within the Louisville city limits. The remainder of Jefferson County was still largely farmland with smaller enclaves of people scattered about, such as Shively and Parkland to the southwest of the city.

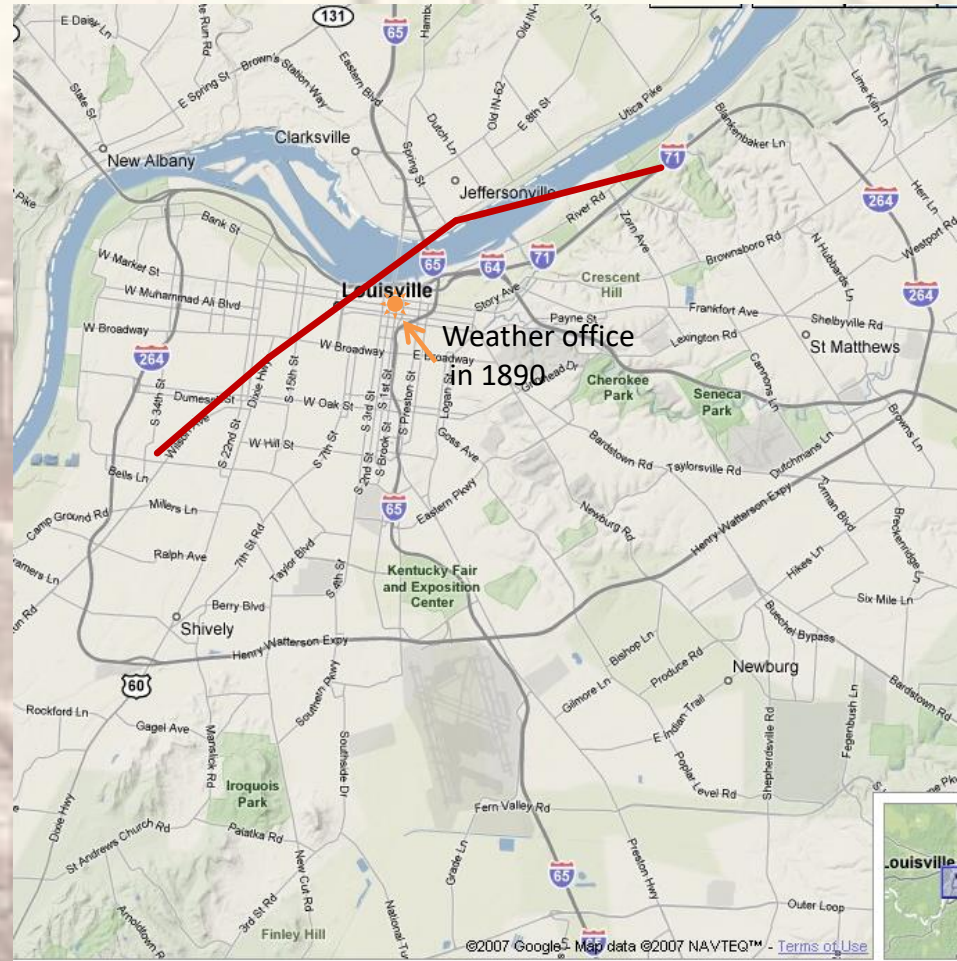


In the Path of the Storm

The exact touchdown point of the Louisville tornado is not known. Some feel it may have actually begun across the river in Harrison County.

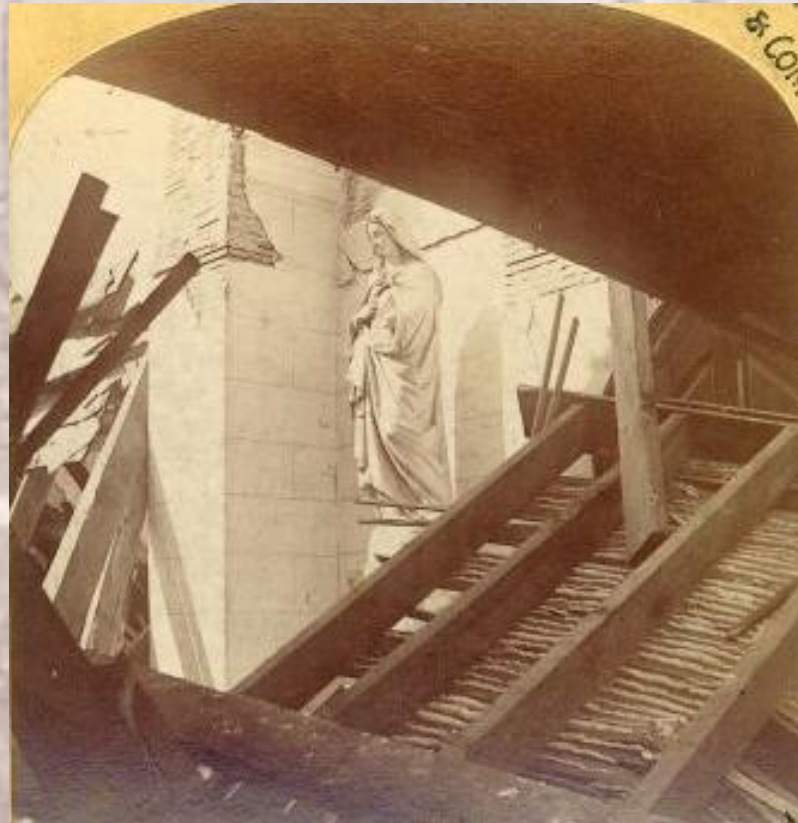
The first district in the tornado's path to receive extensive damage was the California neighborhood, which at the time was the east edge of the independent city of Parkland.

The storm then chewed through the west side of downtown, and continued across the Ohio River. As it struck Jeffersonville's riverfront, it made a slight arc to the east and crossed the river a second time. The storm re-entered Kentucky at the water tower, severely damaging it. The tornado appears to have lifted shortly thereafter.



Broadway at 17th Street

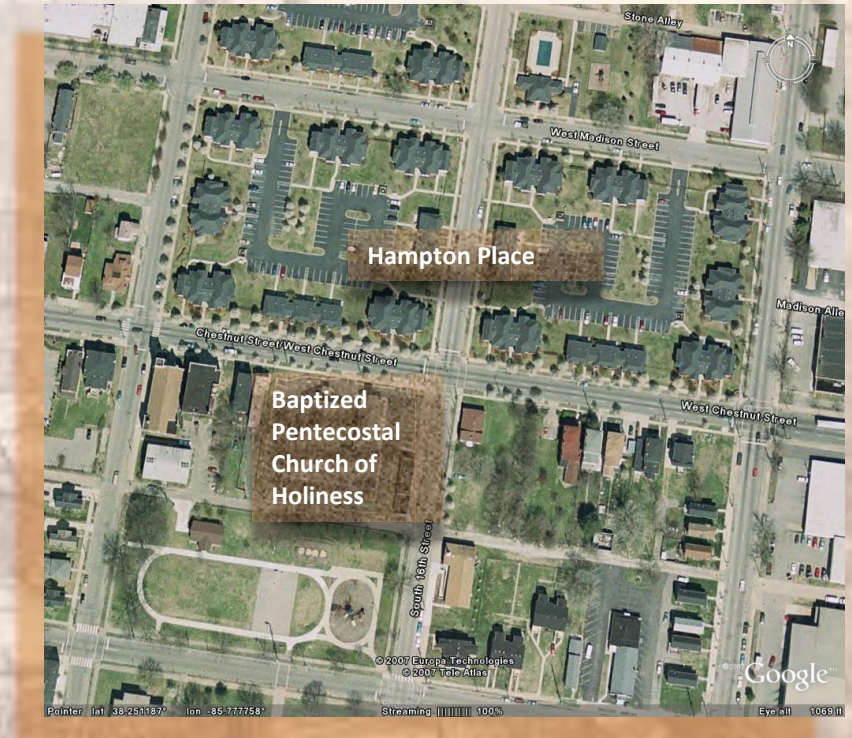
Surrounded by Destruction, this Statue of the Virgin Mary Stands Unscathed in the Church of the Sacred Heart



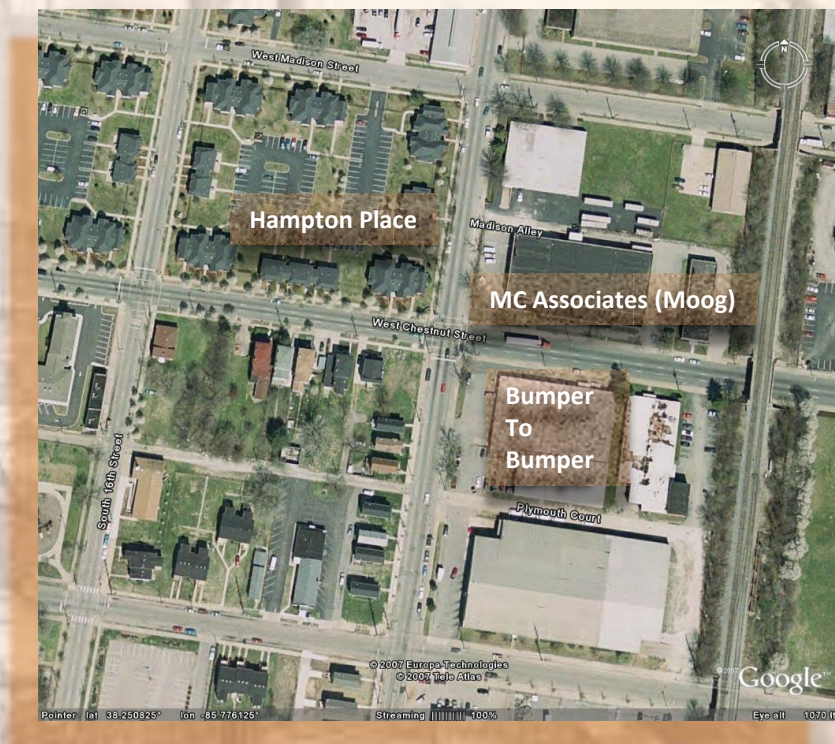
Broadway, Between 16th and 17th



Sixteenth and Chestnut



Fifteenth and Chestnut



Fifteenth Street Looking North



The exact location of this photograph is unknown.

Madison Street



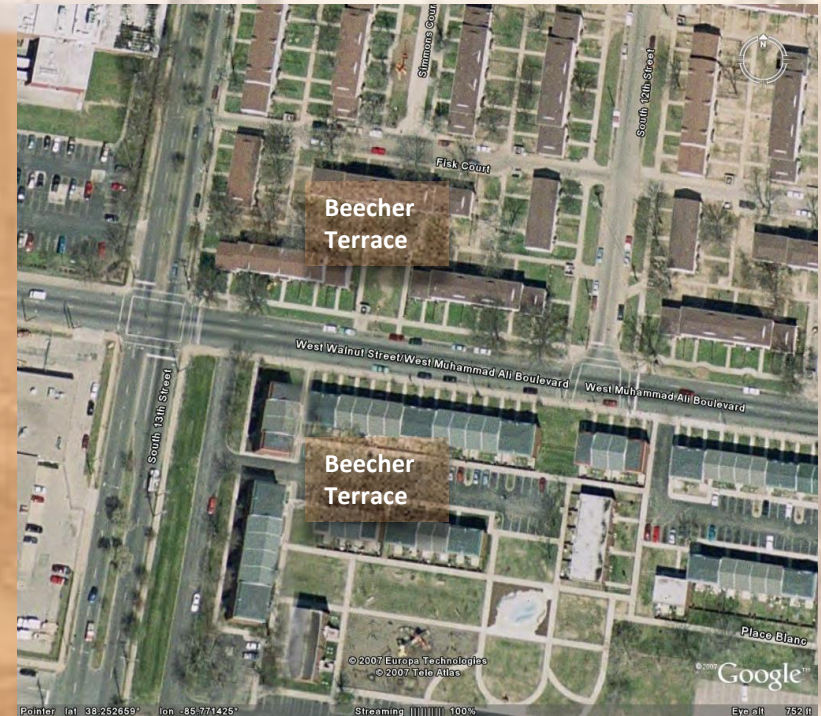
This home was known as the “Cash residence.” Nine people lived here, and all escaped without injury.

Thirteenth and Walnut



Today Walnut Street is known as Muhammad Ali Boulevard.

Eclipse Hall



This was known as Eclipse Hall when it was built in 1872 at 1230 West Walnut Street, and then Odd Fellows Hall after that organization purchased it 5 years before the tornado. Though badly damaged, it was rebuilt and survived until being razed in the 1960s. Beecher Terrace Apartments occupy the site today.

Eclipse Hall



Twelfth and Jefferson



Baxter Park

Baxter Park was a small neighborhood greenspace sandwiched between Eleventh and Twelfth streets along Jefferson Street. It featured large trees and meandering walking paths.

It still exists today as Baxter Square, though the southwest portion of the park has been developed.

On March 27, 1890 the little park was directly in the path of the tornado, and bore the full brunt of the storm. Winds that were likely around 165 mph laid waste to most of the park's trees and littered the walkways with debris. The Baxter Park sign was ripped from its supports and blown free. The metal poles that had held the sign were battered by windborne missiles and bent to a 90 degree angle.



Baxter Park



Baxter Park



This picture shows the 3" diameter iron rods that were bent over by the tornado. The Baxter Park sign that had been attached to the rods was blown away.

Baxter Park



Baxter Park



Near Baxter Park



Jefferson Street Across from Baxter Park

The Home of Dr. Griffith



Thanks to Nathaniel Despain for finding the address for this photograph

Jefferson Street

Saint John's Church and Rectory



The Epicenter

Falls City Hall sat at 1124 West Market Street. On that fateful Thursday evening, a local chapter of the Knights and Ladies of Honor lodge was meeting on the second floor of the building. On the main level, several dozen children were with their mothers taking dancing lessons.

Shortly before 9pm, the building began to tremble as the winds rose outside. Soon a dormer window upstairs blew in and showered the lodge club members with glass. Shards of plaster rained down from the ceiling, and within seconds the floor gave way. The entire second level of the structure collapsed onto the dance class on the main level, and then both floors, with scores of men, women, and children, crashed into the basement.



The Epicenter

In fewer than five minutes the hall became an amorphous mass of bricks, boards, and bodies. Roughly two hundred people were buried under the building's wreckage, many of whom slowly suffocated to death. Others were killed instantly when struck by the falling timbers and mortar. Still others were either able to dig their way out, inch by inch, or to hang on to life until rescuers could pull them from the tragic scene.

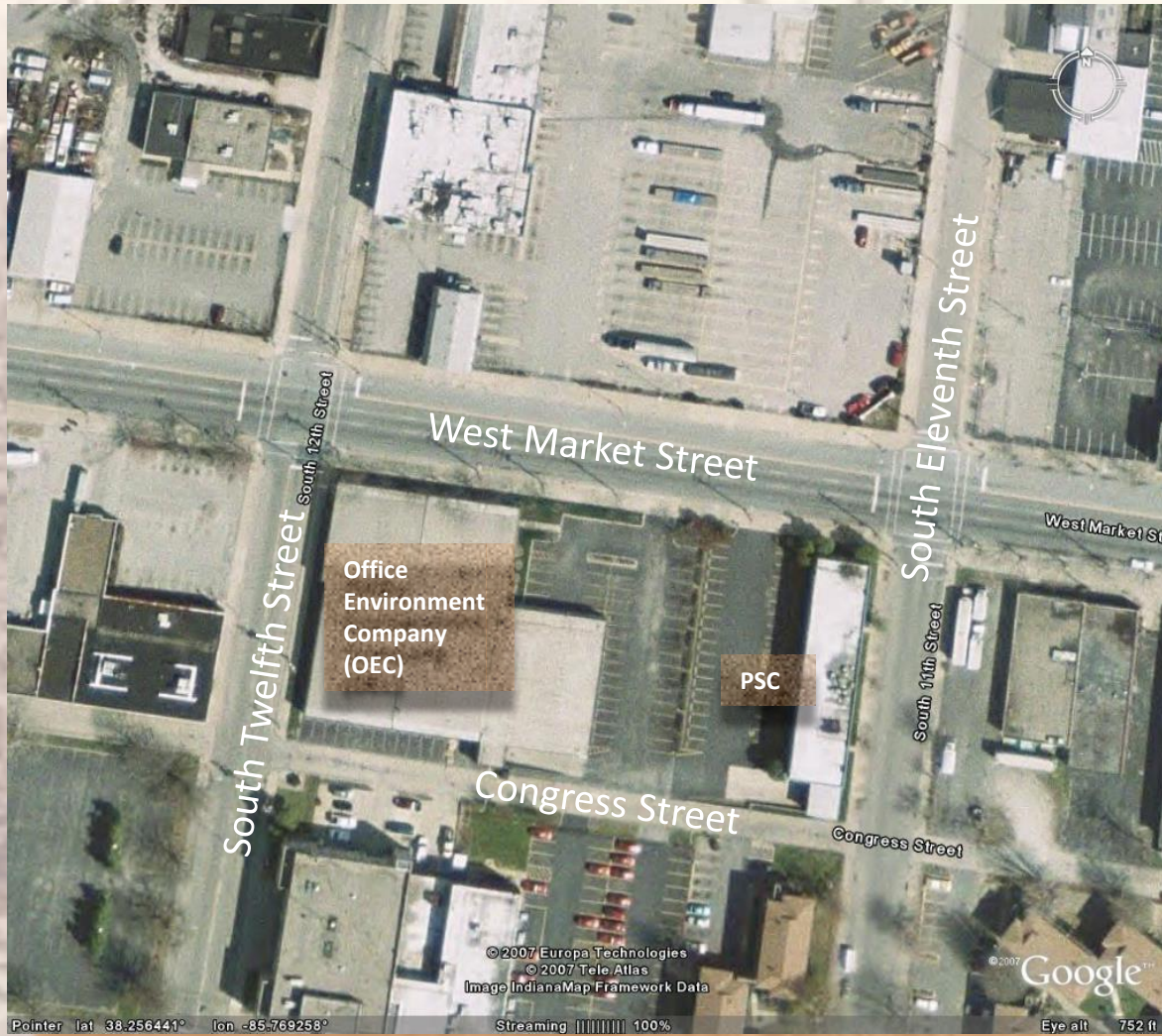
Estimates vary, but it appears that about 44 people perished that evening in the destruction of Falls City Hall. As a result, Louisville has the terrible distinction of being the site of one of the highest single-building tornado death tolls ever recorded in the United States.



Falls City Hall



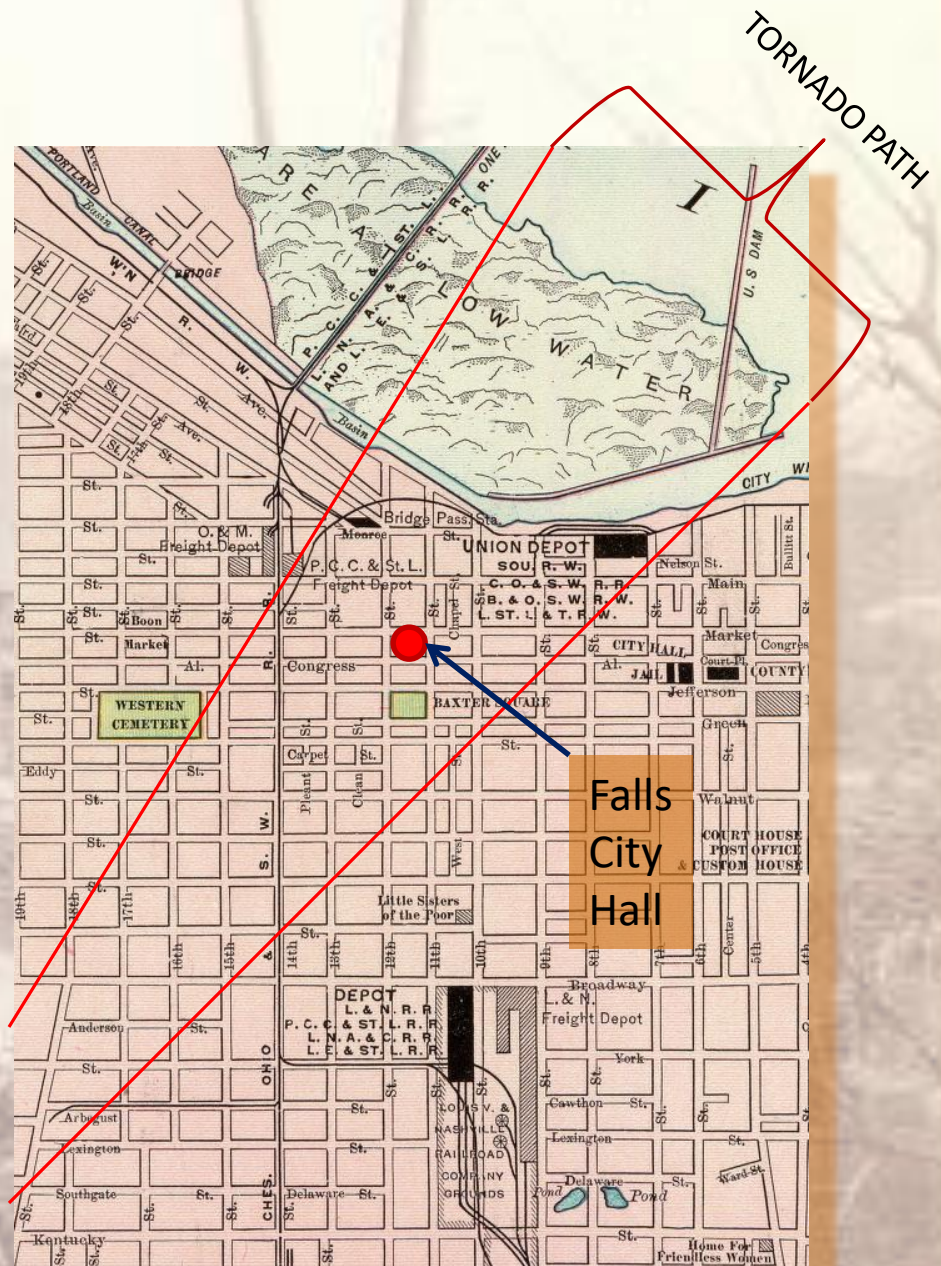
Present-Day Site of Falls City Hall



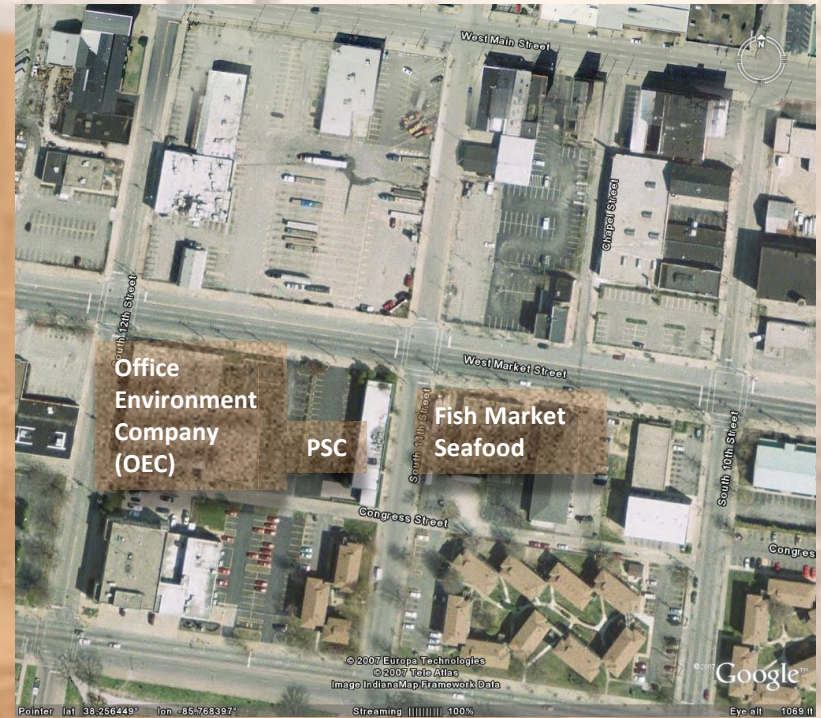
Falls City Hall

The calamity in Louisville, especially at Falls City Hall, put the city on the front page of newspapers not only across the nation but across the globe. Money and other assistance poured into the city from many benevolent sources.

Unfortunately, looters and criminals also attempted to capitalize from the city's misfortune. Boatloads of ne'er-do-wells arrived at the riverfront to pillage what was left of the stricken district. Police posted notices that anyone caught stealing from the tornado victims would not be arrested. They'd be shot on sight.



Eleventh and Market



Market between Tenth and Eleventh



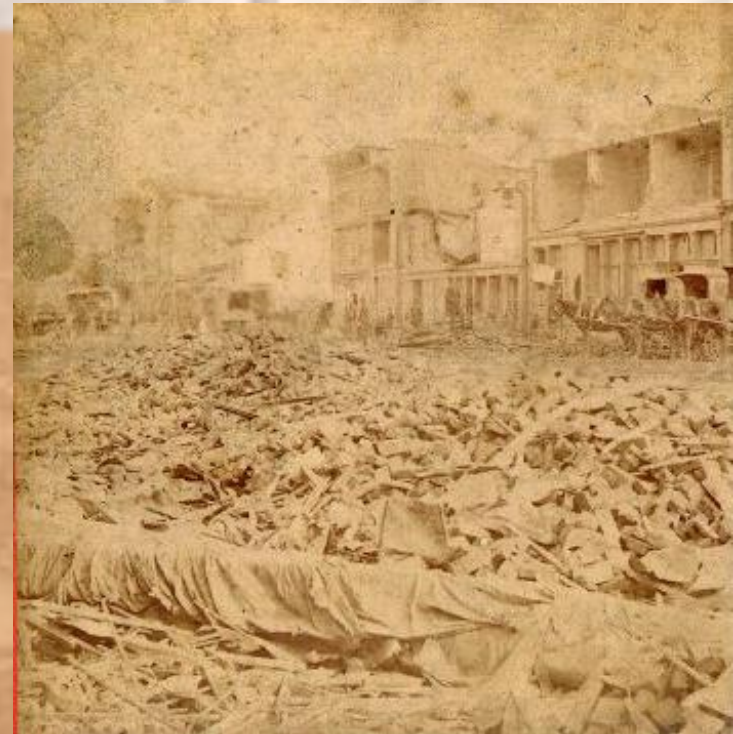
Market between Tenth and Eleventh



Market and Tenth



West Market Street



The exact location on Market Street is unknown.

Tobacco District



These were taken in the tobacco warehouse district west of downtown, possibly along Market Street.

Chapel Street



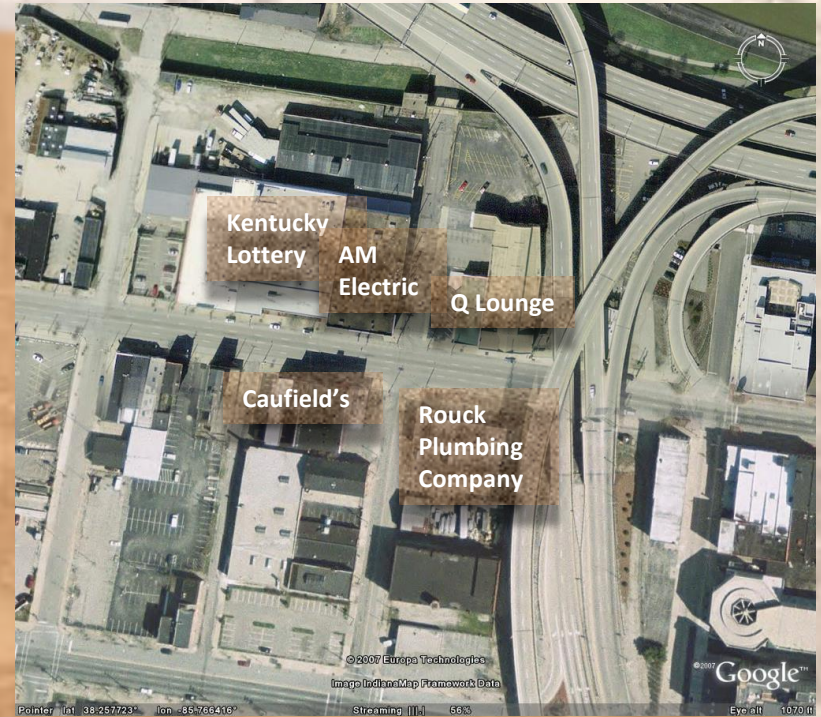
Main between Eleventh and Twelfth



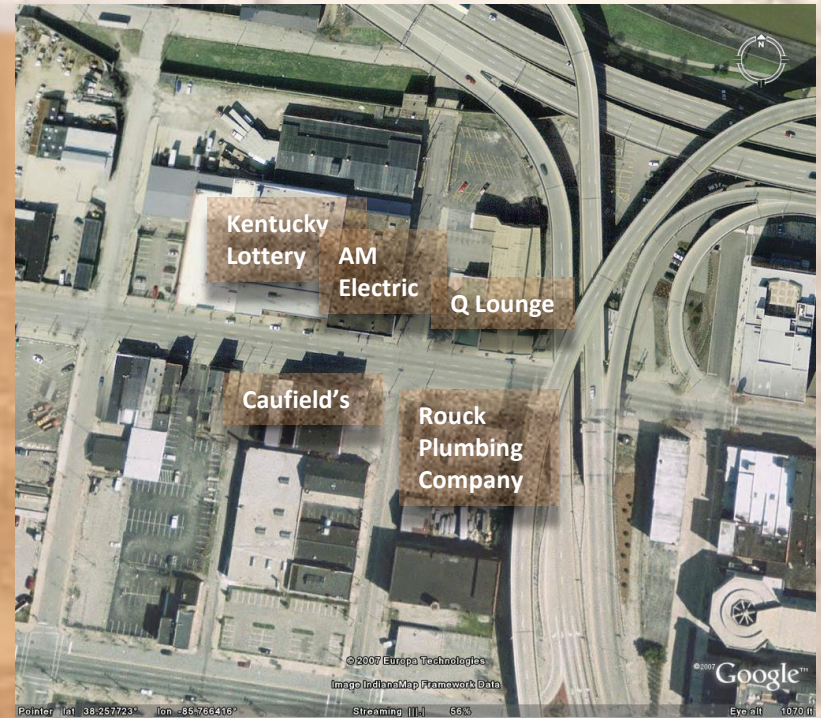
Main and Eleventh Northeast Corner



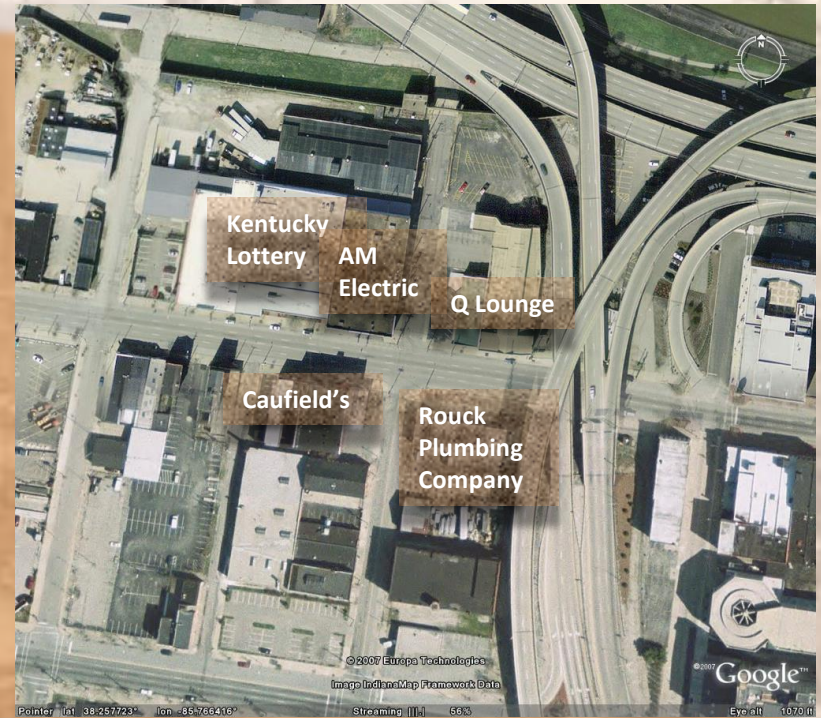
Main and Tenth Looking East



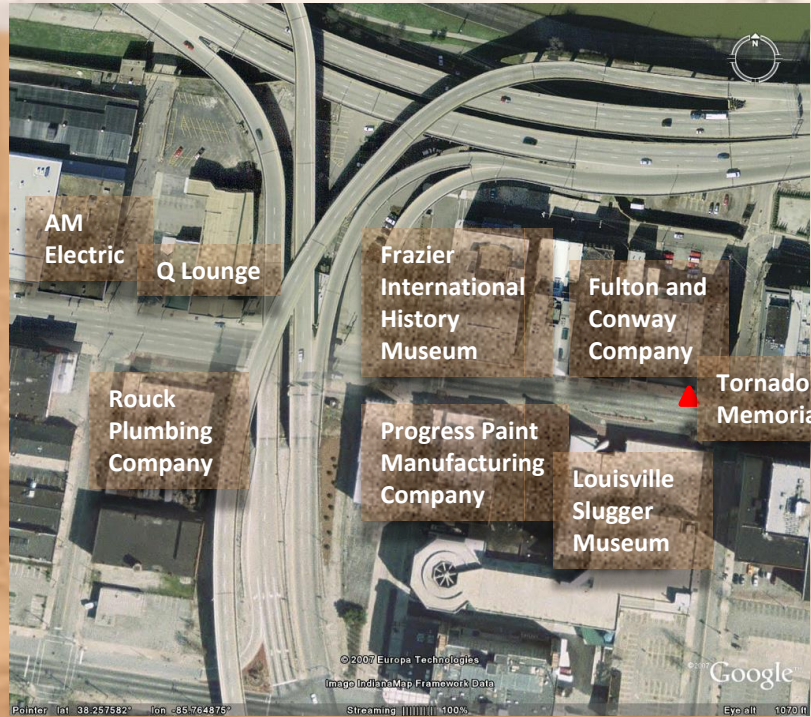
Main and Tenth Looking East



Main and Tenth Looking West



Ninth and Main Looking West



Main Between Eighth and Ninth



Main Street



The exact location of this photograph is unknown.

Seventh and the River

Union Depot



The tornado's wind lifted Union Depot's roof and threw it several feet downwind. The rest of the structure then collapsed beneath it. Fifty people were trapped inside but all survived.

Seventh and the River Union Depot



This was also known as the Seventh Street Depot and Central Station, and should not be confused with the city's primary train terminal located on Broadway.

Unknown Locations

Dead Wild Swan



Unknown Locations

A Mess



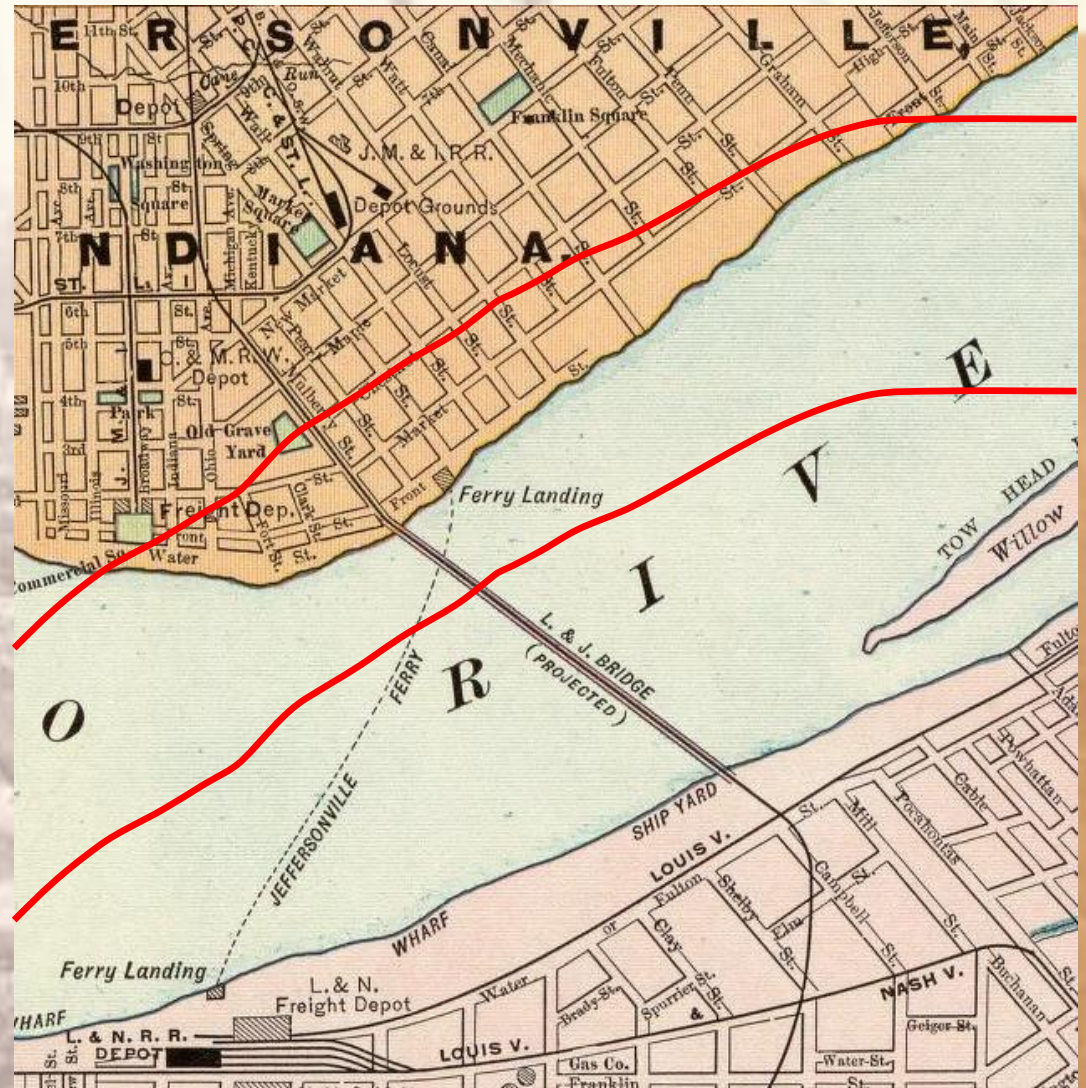
Destruction



Jeffersonville

The tornado left Louisville around a quarter after nine, entering the Ohio River and likely creating an amazing sight as the tornado churned the dark water, sending spray in all directions.

It was at this point that the tornado took a very unusual right-hand turn, after having followed a straight path through western Louisville. This right turn, along with a weakening of the tornado to a low-end F2 strength, spared Jeffersonville from suffering severe damage.



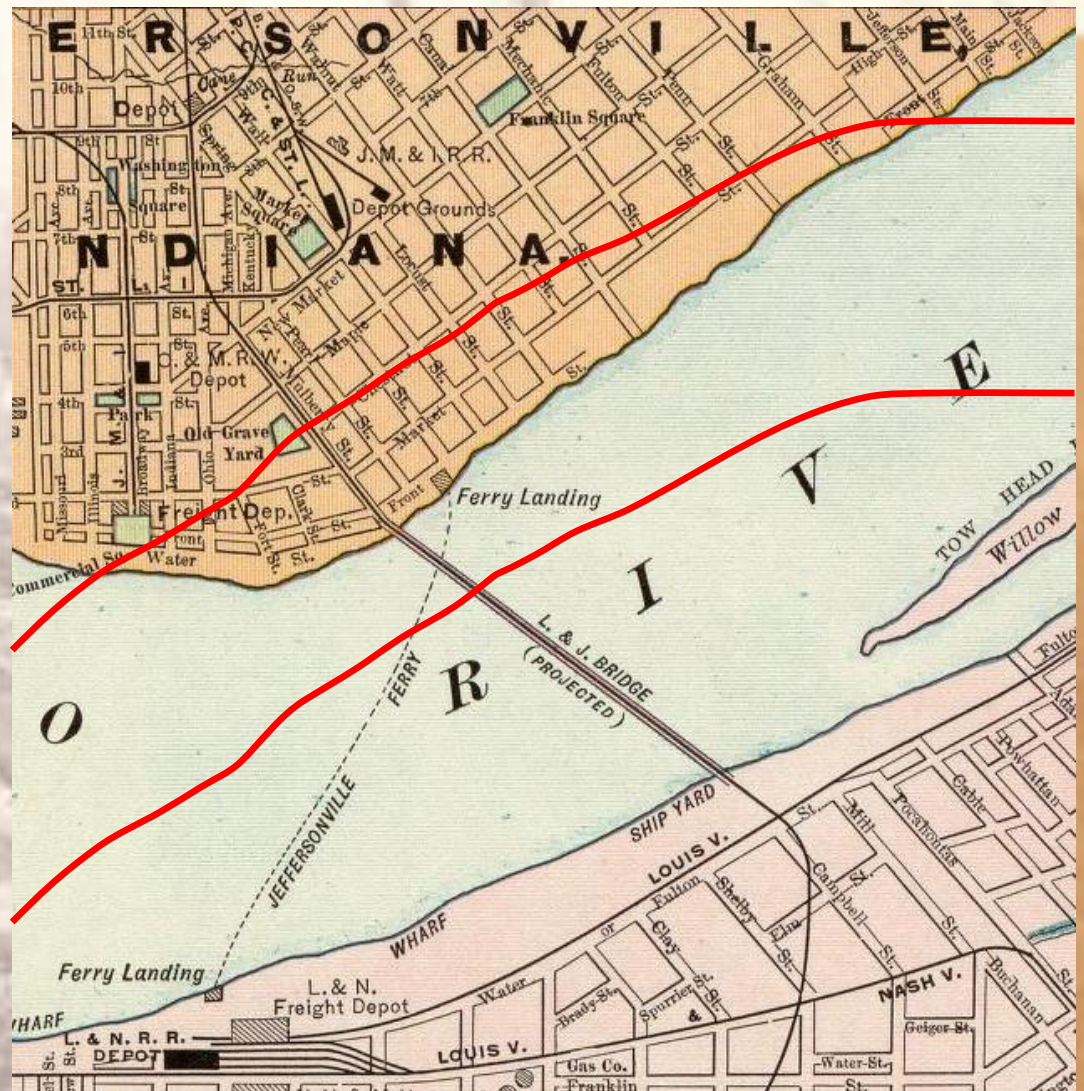
Jeffersonville

As the tornado proceeded to the northeast along the river front, most likely with part of the funnel onshore and part off, eighteen dwellings were demolished and several more damaged.

Only a handful of buildings along the riverfront escaped damage, but no damage could be found more than two blocks inland.

On the river, one boat had its pilot house blown off, a boat broke loose, and four barges of coal sank.

No one was killed or seriously injured in Jeffersonville.



Louisville, Again

After chewing through downtown Jeffersonville, the tornado continued to navigate a bizarre change in direction, having changed its vector from northeasterly to due east. As a result, the tornado re-crossed the Ohio River and came back into Kentucky.

The tornado happened to come ashore right at the Louisville Water Tower, which had been supplying the city with water since 1860.



Louisville, Again

The tower consisted of an iron pipe protected by a wood-paneled shaft, and was 183 feet tall. Around the base of the pipe were ten statues depicting Greco-Roman deities, the four seasons, and an Indian hunting with his dog.

The tornado destroyed eight of the ten statues, in addition to knocking over the standpipe.

With the destruction of the water tower, only six days' worth of water was available to Louisvillians. Special notices appeared urging citizens to severely limit their use of water.



Aftermath

Local undertakers were overwhelmed and brought in assistance from as far away as Indianapolis. A shortage of hearses required the use of electric trolley cars.

As news of the catastrophe spread around the world, aid flooded into the city. Clara Barton, president of the Red Cross, came to Louisville to assist with the relief efforts.

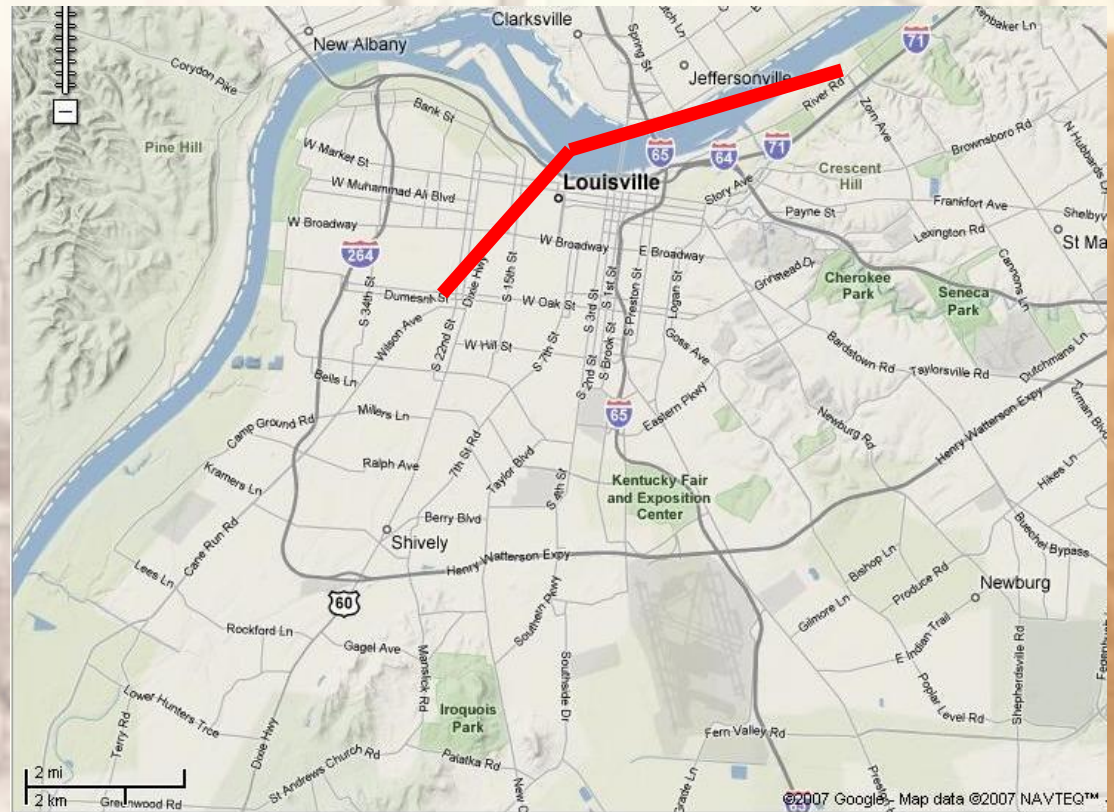


What if it Happened Today?

An EF4 tornado following the path of the 1890 storm would exact a staggering amount of damage on Louisville today.

With tens of thousands of people now living in the area struck by the tornado, some loss of life would seem virtually inevitable, though modern warning systems such as NOAA Weather Radio and tornado sirens, plus a wide array of media outlets, would keep fatalities to a minimum.

Popular tourism destinations such as the Frazier International History Museum, Science Central, and the Louisville Slugger Museum would sustain damage.



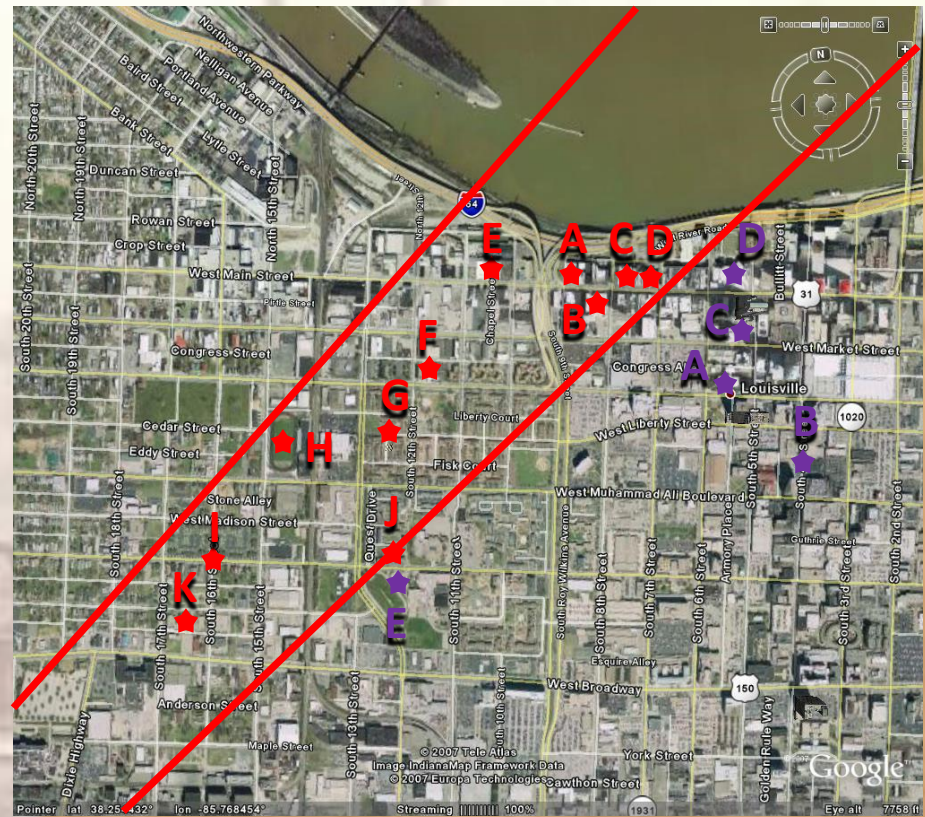
What if it Happened Today?

Transportation would be severely disrupted if any damage occurred to the junction of Interstate 64 and Ninth Street. Also, traffic along those roads would be in significant peril as the tornado swept across the elevated roadways.

River traffic also would be in great danger, unable to maneuver quickly out of harm's way.

Many factories and other businesses on the west side of town would be silenced for several days to even weeks, depending on the amount of damage.

Schools such as Roosevelt/Perry Elementary would suffer significant damage and would be unable to house students.



- A) Frazier International History Museum
- B) Louisville Slugger Museum
- C) Louisville Science Center
- D) Kentucky Museum of Arts and Crafts
- E) Kentucky Lottery
- F) Louisville Firehouse
- G) Beecher Terrace
- H) Central High School Stadium
- I) Hampton Place
- J) Coleridge Taylor Elementary School
- K) Roosevelt/Perry Elementary School

- A) City Hall
- B) Fourth Street Live
- C) Aegon Center
- D) Kentucky Center for the Performing Arts
- E) Central High School

Be Ready!

Tornadoes can happen at any time of the year, and at any time of the day. It's well within the realm of possibility that another tornado of the magnitude of the March 27, 1890 storm could impact the city of Louisville.

Because tornadoes strike quickly, it's absolutely imperative that we all have a tornado safety plan in place *before* the storm hits. Determine where the safest place to hide is, and practice your plan both at home and at work.



See next slide for tornado safety tips!

Tornado Safety Tips

- While the weather is clear, develop a plan at home and at work describing what you will do if a tornado threatens your location. Practice the plan, especially if storms are expected in the next few days.
- If a tornado is approaching, go to the innermost room on the lowest floor of the building you're in, and stay away from windows. Basements and interior bathrooms and closets are usually safe places.
- If you are in a mobile home, evacuate the home immediately for nearby suitable shelter. Even weak tornadoes can topple mobile homes.
- Stay out of rooms with large free-span ceilings such as cafeterias and gymnasiums.
- If you are in a rural area in your vehicle, leave your vehicle and lie flat in a ditch or low spot. Cover your head and beware of flooding from heavy rains. Seeking shelter under an overpass is not recommended.



The National Weather Service (NWS) is the sole official source for all severe weather warnings. Monitor the NWS's website or NOAA Weather Radio for the freshest, most up-to-the-minute information.



The End

Stay Safe!



The photographs on slides 2 and 57 can be found on-line via the Library of Congress. The photographs on slides 17 – 26, 28 – 37, 40 – 58, 61 – 63, and 68 can be found on-line via the University of Louisville libraries. The photograph on slide 66 was sent to the National Weather Service, and was edited for this presentation (no tornado existed in the original photograph).

All maps, except the 1897 map shown on slides 15, 27, 39, 59, and 60, were constructed using Google software. All aerial shots were captured from Google Earth. The 1897 map can be found on-line via the David Rumsey Map Collection.

Postcards and photographs found on slides 3 – 8 can be found on-line at the Old Louisville National Historic Preservation District's website.