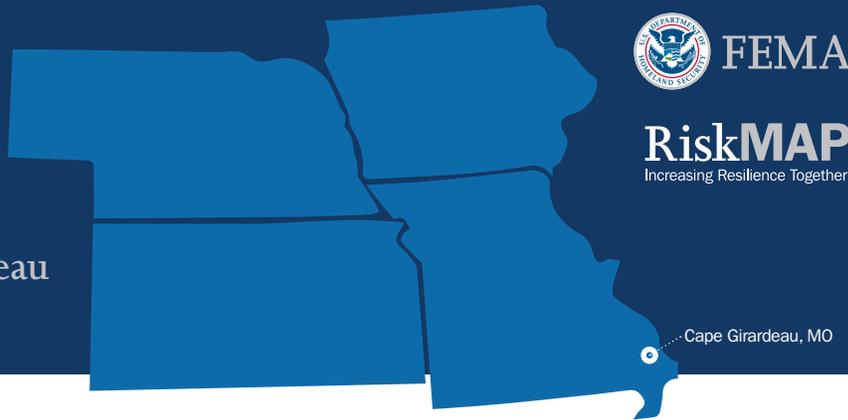


# Region VII

## After Major Flooding, Cape Girardeau Works Toward Resilience



### THE CHALLENGE

1993 is a year most Midwesterners will not forget. From April to September, storms caused massive flooding, resulting in \$15 billion in damage along the Missouri and Mississippi Rivers. Over 1,000 levees across the Midwest failed or were overtopped during this six-month period. In Cape Girardeau, MO, 160 homes in the floodplain were damaged. After the floodwaters subsided, community officials considered a buyout of the impacted properties. However, like many communities, the city lacked the budget necessary to make the buyouts a reality.

Officials hoped that the chances of experiencing another 1-percent-annual-chance flood were slim. However, just two years later in the spring of 1995, the river flooded again. The crest reached 46.7 feet — just shy of the 1993 crest of 48.5 feet. By May 1995, 100 homes had flooded in Cape Girardeau's floodplain — many of them were renovated after the flood two years prior. After the 1995 flood, city officials were determined to take action to ensure that the community was safe and protected against future flood risk.

### THE SOLUTION

Through a combination of innovative thinking, planning, and funding, the City of Cape Girardeau worked to ensure that both residents and businesses would be safer from future hazards. Partnerships were key to this effort, and the Federal Emergency Management Agency (FEMA) and the city worked closely with the U.S. Army Corps of Engineers (USACE), electric utility company Ameren UE, the Missouri State Emergency Management Agency, the Community Development Block Grant Program, the Red Cross, the Salvation Army, and the Interfaith Coalition.

Protecting the livelihood of Cape Girardeau residents at the greatest risk of flooding was the primary objective. After the 1995 flooding, the city bought 114 properties in flood-prone areas with a cost-share between Federal, State, and local governments, as well as non-profit organizations. Once residents were relocated to safer neighborhoods, the land was deed-restricted for open space. Between 2008 and 2016, more structures were bought-out to allow their inhabitants to move outside of the high-risk floodplain.

A floodwall in downtown Cape Girardeau was also updated in the aftermath of the flooding. Originally built in 1964, the floodwall was operated and owned by two small levee districts. The city took control of the districts in 2008 and partnered with the USACE to repair and improve the levees and downtown floodwall.



Relocated Wastewater Treatment Plant, 2015. Image: FEMA

The city had other projects that also proved to be critical in the flood threat reduction effort. In 2014, the city undertook a \$72 million project to update and relocate the city's wastewater treatment plant. In 2015, the city relocated the Solid Waste Transfer Station away from the threat of river flooding, at a cost of \$3.9 million.

These efforts were preceded by work in the late 1980s following several smaller flash flood events in the center of town. This effort involved the city partnering with the USACE to channelize the lower Cape La Croix Creek watershed and build stormwater detention systems in the upper reach of this watershed. The \$48 million project included commercial relocations and buyouts of residential properties in the project area. To partially fund both activities, the city passed a quarter-cent sales tax with a sunset clause and sewer rate increases.

## THE OUTCOME

In May 2002, the Mississippi River at Cape Girardeau crested at 45.7 feet, its third highest level after the 1993 and 1995 events. But this time, the flooding affected only eight homes. "It was almost a non-event," said Doug Leslie, Director of Public Works for the City of Cape Girardeau.

Floods in 2015 met or exceeded the flooding that hit the area in 1993. With improvements to the flood wall and levees, the system was able to withstand a new record flood event and was minimally damaged.

According to FEMA data, Cape Girardeau has received \$1.5 million in federal assistance for severe storms, flooding, and tornados since 2002. Between the wastewater facility, transfer station, and other projects, the city spent roughly \$65 million on mitigation efforts.

The 114 homes were bought out for \$2.7 million, or roughly \$23,600 per home, and removed from the floodplain. Over the next 20 years, home values in the floodplain increased by just \$4,500, and a later buyout would have cost the City more than \$3.2 million. By removing homes from the floodplain early, the City, and US taxpayers, saved roughly \$500,000, plus what would have amounted to significant individual assistance and recovery costs after flooding in later years.

## THE BENEFIT

The most obvious outcome of the city's efforts to remove at-risk structures from the floodplain is the significantly reduced threat levels for residents, businesses, and critical city facilities in Cape Girardeau. These efforts have resulted in a large decrease in damage after a flood event, as well as far less spending on recovery. Also, business owners and residents are no longer concerned about the possibility of facing another event similar to previous floods.

Developing and reinforcing strong partnerships was essential for the success of these mitigation efforts, and these partnerships will be critical as the city maintains and improves community resilience in the future.



Relocated Solid Waste Transfer Station, 2015. Image: FEMA