

Smithville's flooding woes tied to Colorado's meandering past

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Anyone who lives or works along Smithville's most flood-prone blocks knows that it takes just a little heavy rain to fill the street - and sometimes homes and businesses - with a few inches of water. What is less evident is the reason behind those low-lying segments of the city.

The city is on land that was once threaded by the Colorado River, according to studies recently presented to Smithville and Bastrop County officials.

The river's centuries-old path underlies the city's most flood-prone areas: along Martin Luther King Drive and Southeast Second Street, and in the area surrounding Smithville Elementary School.

Centuries ago, before Spanish colonists set foot on the Texas frontier, the Colorado River took a different shape as it ran southeast toward the gulf. In the area around present-day Smithville, the river's bend took the shape of a teardrop as it circumvented higher elevations. Over time, the neck of the teardrop grew slimmer until a flood scoured new channels and allowed the river to bypass the old teardrop-shaped bend, turning that U-shaped segment into a freestanding unconnected body of water, or an oxbow lake.

"This process is called a neck cutoff and it is very common in meandering rivers," said ZoltÃ(degrees)n Sylvester, a researcher at University of Texas' **Bureau of Economic Geology**.

Over time, the oxbow lake infilled with mud before ultimately disappearing and leaving behind rich alluvial soils in the ground.

Centuries later - potentially tens of thousands of years later, Sylvester said - Thomas Gazley made his settlement in 1827, near the town's present site, nearly 70 years before the town's incorporation, according to the Texas State Historical Association. Flooding, at least in recent decades, has been a central issue in the town.

"No wonder we flood. It's like the founders chose to build in Venice," Smithville City Manager Robert Tamble said.

HALFF Associates, an engineering and environmental planning firm, began surveying Bastrop County's many watersheds a decade ago. Last week, it presented some findings after studying 160 stream-miles of seven creeks, and 400 square miles of Bastrop County. A LIDAR analysis, a remote sensing method used to examine land surfaces, of Smithville's topography found evidence of those ancient oxbow lakes.

"What came out of the 2-D analysis, you can see those arcs. Those are actual remnants of the old oxbow that used to go through the city before the city was ever built," said HALFF Project Manager Paul Morales as he presented officials with a flood plain map. "So, the flooding follows those arcs of the old Colorado River oxbow, which is really interesting."

Mitigating the flooding caused by these low-lying areas, combined with flooding caused by Willow Creek and Gazley Creek on either side of the city, would be costly. HALFF Associates has come up with a menu of flood mitigation projects for Bastrop County and the cities of Bastrop and Smithville. For Bastrop, those drainage and flood mitigation fixes totaled nearly \$25 million; for Smithville, \$40 million - four times the size of the city's annual budget.

"That forces you to prioritize what projects you are going to pay for," Tamble said.

Smithville has five pending or active drainage improvement projects across the city. For instance, a nearly finished detention pond, slated to hold up to 13 million gallons of water during heavy rains, was primarily financed by a Federal Emergency Management Agency hazard mitigation grant.

The other flood mitigation options HALFF presented, such as bridge and culvert improvements, floodwalls and dam improvements and buyouts, will have to be selected by the City Council according to the city's budget.

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