



What's the real flood danger?

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Daniel Mayberry turns back from trying to rescue belongings from a relative's home in Nashville after historic flooding in 2010. A new analysis shows the federal government underestimates the flood risk for 281,813 households and properties in Tennessee. LARRY MCCORMACK/TENNESSEAN FILE PHOTO

New data shows risk across Tennessee

By Kyle Bagenstose, Dinah Pulver and Kevin Crowe USA TODAY

As global climate change begins to make a home in America in the form of rising seas, punishing storms and more intense rainfall, the federal government underestimates the flood risk for 281,813 households and properties in Tennessee, a wide-ranging scientific analysis released Monday found. • The First Street Foundation, a nonprofit organization that combined a series of flooding models into a single, nationwide flood risk tool, estimates that 383,176 properties in the state

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today face a 1% annual chance of flooding. That threshold is the gold standard the federal government uses to assess which homeowners must purchase flood insurance, and local planners use to determine which areas are safe to develop.

But under current federal flood maps, First Street found 101,363 properties in the floodplain, 278% less than in its model. Experts say that places residents and property owners at an underappreciated risk to life and property.

Particularly problematic are Hamilton and Davidson counties, where 31,466 and 18,337 properties are at risk of flooding but do not fall within the federal flood maps, the highest discrepancies in the state. Chattanooga and Nashville-Davidson lead the way among cities, where a combined 39,157 properties face previously unidentified flooding risk.

The information will give local governments and property owners a leap forward in understanding their evolving risks from climate change and other hazards, said Kerry Emanuel, a meteorology professor at the Massachusetts Institute of Technology.

It takes pieces of information from many experts and puts it together in a way that hasn't been done before to give property owners "the risk of their home being blown down or flooded by salt or freshwater," Emanuel said.

"They're going to watch the value of their property plummet over time," he said. "That might make them think twice," he said, adding that it might also convince them to ask their elected representatives "to do something about it."

The problem extends nationally, with a total of 14.6 million properties across the nation at risk of flooding. That's nearly six million more than fall within current Federal Emergency Management floodplains, a 70%



Historic flooding swamps Nashville's downtown near the Cumberland River in May 2010. A new analysis shows the federal government underestimates the flood risk for 281,813 households and properties in Tennessee. LARRY MCCORMACK/FILE/THE TENNESSEAN

increase.

First Street's data, developed in coordination with dozens of flood researchers and environmental engineers, show the additional risk touches nearly every corner of America.

The database will have information for "every home in the country, 145 million properties, and that's commercial properties as well, aside from Alaska and Hawaii," said the foundation's president, Matthew Eby. "We'll have the address, the FEMA zone, the building footprint, the parcel, the elevation, all the inundation statistics and a slew of different flood calculations."

Particularly at risk are the most populated states.

In California, First Street calculated about 500,000 properties fall within FEMA floodplains, or about 4% of the state's total. But First Street calculated the actual number of properties currently at risk is nearly 1.1 million, more than double the federal government's

calculations and the largest discrepancy of any state. New York and Pennsylvania follow, each with more than 370,000 additional properties at risk.

But problems also touch interior states with little reputation for flooding. In Utah, First Street calculates about 113,000 properties are at risk of flooding. That's more than a four-fold increase over the 21,000 within FEMA floodplains, the largest such jump anywhere in the country. Wyoming, Montana, Idaho, and Tennessee follow, each with more than three times the number of properties at risk than what federal maps show.

And the situation is getting worse. In addition to a present day analysis, First Street's modeling incorporated 2050 projections from the International Panel on Climate Change, the United Nations' primary scientific body on the planet's changing climate. The conclusion: another 1.5 million properties will be at risk of going underwater in 30 years, primarily along the Gulf Coast and Mid-Atlantic.

Current federal flood maps offer no such future projections, amplifying the unknown risk.

"There's big areas of the country that don't have maps at all so this will be the first time that anyone in that area has actually mapped flood risk for them because the populations are smaller," Eby said. FEMA is mandated by Congress to do it in a certain way, he said, while First Street doesn't face the same restrictions.

The National Association of Realtors looks forward to seeing the new data, stated its president, Vince Malta.

"Improving access to credible flood risk data is critical to many property owners and prospective buyers across the country and to enhancing confidence in real estate markets in various U.S. regions," Malta said. The Association and its members, he said, "welcome all prudent steps toward the development and dissemination of resources that will help American consumers make fully informed decisions about properties' specific flood risks."

USA TODAY data reporter Theresa Diffendal contributed to this report.