

Pitt County Residents Not Warned About Future Flood Risk
Kellen Holtzman
December 2008

The term, “100-year flood,” is often used by experts to emphasize the probability of a catastrophic flood occurring. What many residents living in high-risk flood zones of Pitt County don’t realize is that this kind of terminology can be misleading and the danger of severe flooding could be greater than perceived.

The expression suggests that a 100-year flood has a 1 percent chance of occurring every year. Scott Lecce, a professor in ECU’s Department of Geography, points out that while that may be true, the probability of flooding increases significantly over longer periods of time.

Lecce used an example of a 30-year mortgage on a home in a floodplain. A 1 percent chance of massive flooding may seem like a risk worth taking for some homeowners taking such a loan.

“But over that 30-year period, the actual probability of being flooded by a 100-year flood is 26 percent,” said Lecce. “So instead of a one-in-hundred chance, it’s a one-in-four chance. I think if more people knew that, they would be a lot more cautious.”

Moreover, Lecce says the techniques used to define property in the 100-year flood zone are significantly inaccurate. The margins of error are so high that it may be over or underestimated by 1.5 to two times.

Yet few organizations in the area seek to make the public aware of the dangers of living in a floodplain. And the relative ease in the process in which buildings are constructed in floodplains adds to the dilemma.

In 2005, for example, the North Campus Crossing apartment complex developers came under fire for the apartment site’s location in a floodplain. The complex, which is located off of U.S. 264 near the Tar River, can house up to 1,685 residents and currently has 1,400. Just before construction was approved, the site’s status was officially changed from a 100-year flood zone to a 500-year flood zone. Without the change, a building permit could not have been acquired.

The North Campus Crossing development prompted Lecce to write a letter to the editor of the *Daily Reflector*. In the letter, Lecce compared the margins of error in determining 100-year flood zones to be the “equivalent of a presidential poll suggesting that 60 percent of the country supports President Bush...plus or minus 25 percent.”

Another problem with determining potential hazard areas is the manner in which flood frequency analysis is performed. Flood frequency analysis assumes that there is only one source of the flooding. In fact, a flood series can be generated by more than one type of

event such as thunderstorm floods and spring snowmelt floods. Not taking this into account can give unrealistic estimates of the magnitude and frequency of floods.

Lecce and many of his colleagues maintain that flood frequency estimates should be regarded as “best guesses based on historical data.”

In essence, residents of Pitt County are basing their welfare on guesses.

However, some residents may not even be receiving the benefit of a guess.

In a 2000 case study of eastern North Carolina floodplain residents, 300 questionnaires were distributed to people within and not within a floodplain. The study found that homeowners received little information regarding the flooding potential of their property from Realtors, mortgage officers or insurance agents.

Only 30 percent of respondents in the special flood hazard area indicated an awareness of their property being especially susceptible to flooding.

The unawareness of location can subsequently lead people who need it to fail to buy flood insurance.

The National Flood Insurance Program makes it possible for all residents of Pitt County to benefit from federal flood insurance. The county has participated in this program since 1983. As of 2007, 814 flood insurance policies were in effect in areas overseen by the Pitt County Flood Damage Prevention Ordinance for a total of nearly \$140 million worth of coverage.

In 1994, the National Flood Insurance Reform Act went into effect, urging for warnings about the likelihood of flooding to be issued to residents in danger areas.

But residents outside of the special flood hazard area can be exposed to an even greater risk than those inside of the boundary. Inhabitants outside of the designated zone often don't buy flood insurance because they lack knowledge about the flooding potential of the area.

The dominant source of flooding in Pitt County is riverine flooding, due to the presence of the Tar River and over 30 major creeks and swamps. The flat nature of the terrain also makes the area more vulnerable to widespread flooding.

“Certainly, we have fairly flat topography and when [the rivers] do flood, they have the potential to spread over fairly large areas,” said Lecce. “And of course that's what happened in Hurricane Floyd with the Tar River.”

Of course, 1999's Floyd was indeed the kind of storm experts refer to as a 100-year flood. However, the flooding caused by Floyd was due to saturation of soils and already rising water levels from Hurricane Dennis.

The ferocity with which Floyd hit eastern North Carolina opened the eyes of local residents. After the storm crippled the area, sales of flood insurance policies increased by 24 percent.

According to Tim Byrd of Greenville's William L. Byrd Insurance Agency, residents are generally aware of their own proximity to flood hazard areas—in large part because of the damage that Floyd brought. The storm caused \$346 million in damage to Pitt County real estate, farms, infrastructure, personal property and vehicles, according to the county's Flood Recovery Final Report.

"I think most of them know they are [in a flood zone] since the flood in 1999, or they are aware of it," said Byrd.

But while Byrd believes that Pitt County's terrain makes it more flood-prone than other areas of the state, he doesn't think that those in flood hazard areas are much different than those outside of them. Byrd says that "everybody is in a flood zone when you think about it."

Yet, proximity to flood hazard zones also has a profound impact on property value, according to research by Okmyung Bin, a professor in ECU's economics department. Bin has studied the effect of flood hazards on property values before and after Floyd. Bin found that property values are lowered by an estimated 5.7 percent when located in a floodplain.

"Homes in flood zones normally have a kind of discount of about 6 to 7 percent than comparable properties not located in a flood zone," he said.

The average pre-Floyd estimated discount for a house in the floodplain was \$4,888. The post-Floyd numbers rose to more than \$10,825, indicative of the effect Floyd had on local property values.

Moving 1,000 feet closer to the Tar River from an initial distance of one mile results in a \$615 increase in house value.

Applicants wishing to build in floodplains don't necessarily have much stopping them, but they do need to receive a permit to allow construction to begin. The application for a permit needs to include basic information about the proposed site such as the desired use and a description of the land.

However, local officials do take a variety of factors into account including the potential danger to life and property due to flooding, the susceptibility of the proposed development, and the importance of the proposed development to the community.

Stephen Smith is the senior planner for the Pitt County Planning Department. In addition to his role in planning, Smith also doubles as the chairman of the North Carolina Association of Floodplain Managers. The flood plain group, which is a nonprofit

organization, consists of planners, engineers, land surveyors, building inspectors, zoning officials, emergency management coordinators, and private sector individuals and companies.

But it does not try to prevent construction in flood zones.

“We provide floodplain information to the public as a service when requested,” Smith said of the association’s role. “It would be impossible to know every time someone buys such a property. There is something in real estate law that requires all hazards on a property be disclosed at time of sale/purchase.”

The organization’s Web site says it is dedicated to promoting public awareness of proper floodplain management.

“The flood plain association is more of an educational tool for floodplain professionals in North Carolina,” said Smith. “We provide training and guidance. We do not make rules. We do provide input to our national organization when they are working with Congress for new policies.”

There is no way to pinpoint the arrival of a storm capable of the destruction Floyd caused nearly a decade ago. Regardless, a lack of any significant obstacles indicates that construction in floodplains isn’t likely to let up. And because of a lack of communication and education, some Pitt County residents won’t know what hit them when the next major flooding even occurs.

In the meantime, critics like Lecce will look on with great interest in preparation for the next 100-year flood. And it may come sooner than you think.

Ryan Kelleher and Manuel Alender contributed to the reporting of this story.