

Hurricane Florence: What She Taught Us

Laurinburg resident Wade Hatcher, 82, and his wife drove into the darkness with only the light from their headlights to guide them through the blacked-out city.

“A police car came down our street with a siren and policemen were getting out and a female police officer knocked on our door very hardy at 2:20 a.m. and told us there’s a dam about to burst and we were in a flood plain and we need to evacuate immediately,” said Hatcher.

The Hatchers would evacuate to the campus of St. Andrews University where he recalled roughly 150 campers on the floor of the gymnasium. From there he and his wife would spend the rest of the night on the floor with the others before calling his daughter for help. She and her boyfriend would make the trek from Fayetteville to Laurinburg in his four-wheel-drive truck.

“They said get in quick because it’s flooding the way we came,” he said.

Hurricane Florence wreaked havoc on North Carolina last September, leaving many communities and homeowners still recovering financially, mentally and physically.

Hatcher has lived in Laurinburg since 1974 and said he has never seen anything like the damage wrought by Hurricane Florence. Although Hatcher did not sustain property damages except for a fallen tree and the loss of a freezer full of food, he saw much more devastation working with the Baptists on Mission Disaster Relief Team. Hatcher traveled with the team who worked on homes that sustained significant flood damages in Laurinburg and Lumberton, recalling the work it took to restore them.

Another Laurinburg native recalls the event, in which the storm hit close to home.

“Everyone in my household lost cars in the yard,” said Tia White, resident of Old Lumberton Road in Laurinburg. “I have never experienced anything like it.”

White also said her road collapsed as a result of the storm. Fortunately, her home and family members did not sustain many damages.

In addition, the North Fire Station in Laurinburg suffered damages from flooding during the storm and is still out of commission.

According to City Manager Charles Nichols III, the station is located approximately 20 yards from Leith Creek, which helps move flowing stormwater out of the town.

During the storm, the station sustained 3-4 feet of water and was nonoperational.

Nichols said that although talks with FEMA did not yield much promise, options such as the governor’s unmet needs fund and other state grants and monies such as Golden LEAF grants are being tapped into.

“We need to have both of our fire departments operational when we have a natural disaster...we need our North side of our town to be protected by the fire department,” Nichols said.

The city’s experience stems from the destruction wrought by Hurricane Matthew in 2016.

Nichols said that following Matthew, the city explored the options of federal grants, however this time more mitigation measures are being taken.

“I’ve been trying to work with the state and FEMA and DOT to address those issues. We know it’s been a tough year and I can’t imagine being displaced from your home like a lot of families still are,” he said. “We are doing all we can to make sure we are prepared for rain events and

natural disasters like we received in 2018,” Nichols added referring to solutions and prevention measures for the future.

In the aftermath of the second storm since Hurricane Matthew two years prior, it is apparent that the area is susceptible to flooding.

Another concern to Laurinburg residents is flooding on the east side of Interstate 74 on Exit 191 which is feet away from reaching the height of the road.

“I had an email concern about water on parts of 74,” said Garland Pierce, N.C. Representative.

According to Pierce, the solution is to wait for the water to evaporate and to recede naturally.

He said he is hopeful that as the weather becomes warmer, the water will recede.

“There are some areas that have been flooded that have never flooded before...therein lies the problem,” Pierce said. “I’ve never seen that kind of water coming out of Wagram into Laurinburg,” he added, describing the pond-like areas he observed.

This is a reality due to the many different factors that contribute to flooding in the area. Location to rivers/flood zones, soil type, drainage and climate change are elements that present a substantial impact to the areas of Robeson, Scotland and surrounding counties.

Location to rivers/flood zones

One issue that contributes highly to residential and area flooding is proximity to bodies of water, specifically related to flood zones.

Flood zones are areas that are more susceptible to experiencing water retention and flooding than others located beyond flood zones. Therefore, residents who build in flood zones face a higher

risk of flood damages in the event of hurricanes or heavy periods of rainfall. So, why is this problem recurring?

According to governing.com, “Nationally, much of the development that’s taken place in floodplains is a consequence of federal regulations that do little to discourage construction in flood-prone areas.”

Soil type

In addition, another factor that contributes to area flooding, especially within the town of Pembroke, is the type of soil that the area is composed of.

“Geologically, the Pembroke area is chiefly composed of coarse-grained sands and limestone, which have lots of open spaces (or pores) within them,” said Jeff Chaumba, a geology professor at UNCP.

This means that water often accumulates and sits in the spaces of the soil layers, which has a considerable impact on area flooding.

“Should there be exceptionally large amounts of precipitation, the geology of the area combined with the gently sloping terrain makes the Pembroke area and Robeson County as a whole, prone to flooding,” Chaumba added.

The existence of Carolina Bays also plays a role in area flooding.

“Robeson County is covered by these oval depressions called Carolina Bays, which while not part of the usual drainage systems, are low spots and when it rains, they tend to fill up with water,” said Martin Farley, chair of the geology and geography department at UNCP,

Farley said one of the largest Carolina Bays in the area is Lake Waccamaw. He also said that the Carolina Bays extend from Georgia to New Jersey but the largest concentration can be found in the Carolinas, hence the name “Carolina Bay.”

Man-made drainage issues

Yet another contributor to drainage issues is the creation of man-made drainage solutions.

Although well-intentioned, the manipulation of water flow affects how it permeates the surfaces and flows back into the ground. Some surfaces are less conducive to water flow and absorption than others. This also contributes largely to the event of area flooding in Robeson and surrounding counties.

Climate change

Undoubtedly another effect caused by similar human behavior also adds to what some consider the taboo subject of climate change. Climate change can be defined as shifting patterns of weather and natural phenomena due to conditions that have acted upon the environment and affected it largely and negatively over time.

As stated on ucsusa.org, “Global warming is shifting rainfall patterns, making heavy rain more frequent in many areas of the country. With human alteration of the land—like the engineering of rivers, the destruction of natural protective systems and increased construction on floodplains—many parts of the United States are at greater risk of experiencing destructive and costly floods.”

Littering

Litter or improper disposal of waste materials by humans can also have a negative effect on flood prevention measures. For the accumulation of trash and litter can impede the flow of water and cause standing water in streets or terrain.

In 2013, Memphis experienced a period of constant rainfall and in preparation, crews circulated with the task of keeping storm water drains free of litter. As reported by WMC-TV news, littering is a contributor to the event of flooding.

Fortunately, as experts begin to learn more about flooding and its far-reaching effects, solutions are beginning to surface.

Global solutions to flooding in the UK: flood barriers

For example, the United Kingdom is exploring various flood solutions.

Among them are sectional and frame flood barriers along with the methods of natural flood management.

Sectional flood barriers are a promising option for the UK.

“Lightweight sectional metal barriers are relatively inexpensive and can be placed in various configurations and removed completely when waters recede,” the BBC reported.

Similarly, frame barriers are also a feasible option.

Frame barriers use the weight of the waters to maintain balance and to prevent flooding.

Natural flood management solutions

Solutions that lean more towards natural flood management include the incorporation of plants in flood plains.

According to the BBC, “Trees can also help defend against floods. Planting more trees catches rainfall and helps take water from the soil - although the Environment Agency says large areas must be reforested to make a real difference.”

Similarly, the Dutch are also incorporating new ways to coexist with the rising waters in the Netherlands.

“The Dutch devise lakes, garages, parks and plazas that are a boon to daily life but also double as enormous reservoirs for when the seas and rivers spill over,” according to The New York Times.

Local flood prevention measures: Pembroke

On a local scale, the town of Pembroke is in the process of a storm water drain project that will help alleviate areas that are susceptible to flooding.

The project concerns cleaning out ditches and culverts, repairing underground infrastructure and placing more storm drains in town.

The project has been divided into two phases, the short-term and the longer-term phase.

The short-term phase is virtually complete.

The longer-term phase will take longer to implement, mostly due to expenses. The plan in its entirety will cost the town a total of \$7 million.

Therefore, according to town manager, Tyler Thomas, until more external funding is secured, the project will continue to go unfinished.

Lumberton floodgate

Additionally, as reported by WBTW News 13, the city of Lumberton is devising a floodgate effort that is expected to be complete in 2020.

Last November, WBTW reported, “A state report published in May indicates a plan to plug the gap in Lumberton's levee was part of the original plan for the levee drawn up in the 1960s. The report also includes several other strategies to mitigate damages and costs from Lumber River flooding. Some of the ideas include dry or wet reservoirs upstream, roadway elevation, elevation/acquisition/relocation of homes and businesses, or even creating a diversion channel for the river.”

The construction of a floodgate could be big news for Lumberton residents like Divya, Terry and Christian McArthur.

The McArthurs faced flooding in hurricanes Matthew and Florence which damaged their home in South Lumberton significantly. Recently, the family received the renovation of a lifetime, with the news of their new home announced on the “Tonight Show” hosted by Jimmy Fallon.

Operation Blessing, East Lumberton Baptist Church and Home Depot teamed up to place the family in a new home.

“This is another miracle for Lumberton, a gift brought by generous people,” Bruce Davis, mayor of the city of Lumberton told The Robesonian. “This is a great thing for a good family,” he said.

Residential solutions

Still, there are a number of solutions that residents in flood-prone areas should consider.

According to Advanced Drainage Solution's, the following are solutions to residential flooding:
storm water collection and removal, restructuring the land, custom PVC drainage systems, gutter
and downspout corrections and landscape and hardscape finishes.

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