This is 30 Brave Minutes, a podcast of the College of Arts and Science at the University of North Carolina at Pembroke. In ***30 Brave Minutes*** we'll give you something interesting to think about. The topic for this episode is Hurricane Matthew. Joining the Dean of the College of Arts and Sciences, Jeff Frederick, are Dr. Dan Barbee and Dr. Robert Schneider from the Department of Political Science and Public Administration, Dennis Swanson, Dean of the Library, and Morgan Jones from the Office of Advancement. Get ready for 30 Brave Minutes!

FREDERICK: Almost a year ago, Hurricane Matthew, the southernmost formed Category 5 in history, killed nearly 600 people from here to Haiti, dropping almost twenty inches of rain in parts nearby, damaging over one million American structures, leading to the temporary evacuation of 3 million, and the loss of power and water for millions more. At the time, the storm was the tenth worst natural disaster in economic totality to impact the United States.

For us in this area, we witnessed the cresting of the Lumber River; Kinston saw the same with the Neuse; Greenville with the Tar. The accumulation of the water into houses and over vehicles, the closing of roads, and toppling of trees brought the storm directly into the lives of families who faced the difficulties of darkness and no water. North Carolina, the second largest rural state in the Union by population, faced a challenge of unimaginable complications.

First responders saved lives; family and community members checked on each other, pooled resources, and got through each day and night; city and county and state and federal government coordinated, communicated, and started the process of getting so many into and then out of a shelter and then helping to find a way to move ahead; relief, church, and community organizations came and kept coming. Folks took care of each other, building hope and overcoming the waters one day at a time. UNC Pembroke became a staging area for National Guard troops. Some of our buildings and storm water systems were damaged. Many of our students, faculty, and staff saw their friends, family, and neighborhoods confront the literal challenge of starting over. The word "volunteer" took on a new meaning as this part of the state pulled together, building bridges where walls had existed, and taking the needs of their neighbors as their own. Various small business assistance groups got on the ground to help with picking up the pieces and figuring out a way to make payroll and move ahead. It was a year ago, but then a year later, so many of us are still transported back in time when we see some of the damage of Harvey or Irma, or catch a whiff of stagnant water, or see a piece of wet carpet.

For those that lost so much, for those that lived much of the last year in a trailer or a hotel, for those whose businesses are not yet back to full strength **we offer our support and our willingness to help connect you.** For those on our campus or in our community that have spent the last year investing in each other in every way from checking on neighbors to dropping off bottled water and clearing downed limbs, to holding jobs for storm effected people even while they were rebuilding their lives and unable to work regular shifts, **we say well done**. And for our

first responders, our emergency management, city, county, state, and federal government leaders, **we say thank you**.

Our topic for today: the response, relief, recovery, and resiliency of southeastern North Carolina in the context of Hurricane Matthew. Thanks to Bob Schneider, Dan Barbee, Dennis Swanson, and Morgan Jones for joining us today. Each experienced the hurricane as both a resident of the region and an expert in one form or fashion.

Where were each of you when the storm hit and the waters began to rise?

SCHNEIDER: Of course I was at home in Lumberton, and as the storm came in I was kind of relieved that it was going to stay off-shore and maybe it wasn't going to be such a bad hit, but then of course, it stalled and we had record amounts of rain. In our neighborhood we had up to twelve inches and the water rose and kept rising. By Monday it had risen to the point where we were forced to evacuate by boat and fortunately we did not get water in our house and our damage was relatively minimal under the circumstances. One of the things that really hit my attention. I have spent many years studying natural disasters, studying preparedness, response, mitigation and recovery, but for the first time in my life I was in the middle of one. I wasn't just reading about an event or watching on television as other people were evacuating their homes, I was there. For all that I knew and all that I had thought I understood, going through the experience was very enlightening to say the least.

FREDERICK: Absolutely. What about the rest of you all?

BARBEE: I live in Southern Pines, and so we were even further inland, and really elevated quite a bit compared to most of Robeson County, and so I didn't get impacted quite as adversely as Robert and some of the other folks. Moreover I was able to check it out on the media, on TV mostly, and it turns out over a rather extended period of time I had an opportunity to watch the hurricane build in intensity, the rain continue to drop, and also in great amounts. Basically to examine what I had been studying for the better part of thirty years in disaster recovery. I was also impressed with the tenacity, if you will, of the responder community, mostly in Robeson County and the surrounding area. Cumberland County also was affected extremely adversely. I had a number of graduate students who actually put together photographic records of the neighborhoods in which they were trapped or in which they lived. I am finding that ordinarily Cumberland county and Robeson County, UNCP's footprint actually in the six counties, or thereabouts, had a situation where we were in the middle of it, unlike most other Hurricanes. We're normally a host county for evacuation and shelters, but not in this case. We were right in the middle of it and UNCP was right in the middle of that middle.

FREDERICK: In fact lots of people left the coast to come here and they got a dose of something they weren't expecting.

BARBEE: Absolutely. So I was fortunate in terms of very minimal damage, no evacuation that I know of in my area, and we did a lot of sheltering, a lot of responding, and a lot of supplies. It was a community-wide effort.

FREDERICK: Morgan, where were you?

JONES: Well, I was at home with my twelve-month-old, here in Pembroke, NC, but in the nearby city of Lumberton, North Carolina, my family was getting ready to celebrate thirty years in business. Fuller's Barbeque in Lumberton, NC, so the night before Hurricane Matthew, my mom closed up. She had on her rain boots and they were preparing for the storm. What they thought was going to be minimum. The day of, when Hurricane Matthew hit, we were actually going to close, but we had committed to catering a wedding that day. My uncle didn't want to let the bride and the groom down, so we opened until twelve o'clock. The water started coming into Fuller's. My mom, my uncle and my cousin went and bought sandbags and they were trying to stop the water from coming in. They were moving all the tables downstairs to upstairs. By the time they finished that, the water was at the cash register, so they realized that all the catering trucks and vehicles would need to move and get to Saddletree, which is a close by community. They were able to do that and save our vehicles. By the time they got back, most of our tools in the kitchen were already floating. It was already too late. That week we were getting ready to celebrate thirty years, and we have been closed ever since. We haven't reopened.

FREDERICK: I drive out the neighborhood where Fuller's is every day, and I see that bright green rooftop and landmark. When it was covered with water that was a surreal experience.

JONES: The way we were able to find out that Fuller's was completely flooded was the weather channel. My aunt, who lives in Delaware, called and said Fuller's is completely under water.

FREDERICK: It's no good when the Weather Channel is in your neighborhood, is it?

JONES: Or floating around it in a canoe.

FREDERICK: Dennis, you are a native Californian. You got to experience something from a totally different perspective.

SWANSON: Well I did. I probably had only been in the state for three or four months by that time. I live here in Pembroke. Where I was, was somewhere between my house and the University. I made about four trips back and forth. I was on my cell phone with the Wilmington office of the National Weather Service. I am a weather spotter, and I have been for twelve years. I brought my station and all of my equipment from California and set it up here. They were calling me, and I was calling them, and they wanted on-site reports. I was also the Dean of the Library. I was concerned about our main reading room, which has a large fiberglass paneled roof

that I was a little bit concerned about, whether it would survive. We still had on campus, we probably had three or four-hundred students still on campus on Saturday. I remember meeting one student. She was trying to get to her dorm and faculty row had about two and a half to three feet of water at three o'clock and I put her on my shoulders and carried her across the street to get her to the dorm and then wandered back. It was a little different. I was a LA policeman for fifteen years, so disasters are kind of second nature to me. This was a unique disaster, not a fire or flood or earthquake, but it was a lot of flooding, and it was a lot of interesting things going on.

FREDERICK: Well, let's circle back a little bit and look at this from more of a discipline perspective. How do meteorologists, emergency planners, governors, government agencies, and businesses all start to do to prepare for a storm? Take us inside preparation.

SWANSON: For meteorologists, what people don't understand is that the National Weather Service only has a limited number of weather stations. They really rely on people like me to run our own private little weather station. So my station uploads data every three minutes to the National Weather Service to MATIS, to three or four other entities. For instance, here in this region, ideally the National Weather Service would like to have a station every five square miles. That gives them the best coverage and they can make accurate forecasts. Until I put my station in operation there was no reporting weather station in this area between the airports in Laurinburg and Lumberton. There is still only one new one, but the University has just recently put a weather station in service. So there is hardly any reliable information in this immediate region. That is because it is an expensive hobby. It costs about $2,000 for the equipment that you want. They are trying to gather data. If you remember Irma, just a few weeks ago, initial reports were Irma was going to come down, even as it was approaching the Tampa-St. Pete area, the space coast on the other side of the coast wasn't really that concerned, but Irma wobbled about twenty miles to the east and the space coast was devastated with an enormous amount of flooding. I think Jacksonville is still under a coastal flood watch right now.

SCHNEIDER: Well, from the Emergency Management Perspective, disaster preparedness is an everyday event. I mean, every community across the country begins with the assessment of their risks and their vulnerabilities. We know from their history that they are prone to have certain types of natural disasters, whether it is wild fires or hurricanes, or tornadoes. So they do thorough risk assessment, and that includes assessing impacts on infrastructure of hypothetical storms, impacts on at-risk populations, that type of thing. And so it is an ongoing activity. Of course they do the training, acquire the technology, and develop the planning so that they can respond when a disaster actually happens. You know, planning and response are just two parts of the puzzle. To be thoroughly prepared for the disaster, you have got to get involved with this thing we call hazard mitigation. Once you have identified risks and vulnerabilities, communities can take certain steps to reduce the impact of an expected event. Even the nature of expected events changes, so you have to constantly reassess risk and vulnerability. For example, in 2015

for the first time FEMA required communities to begin thinking about climate change when they do risk assessment. Now every community has to produce what is called a Hazard Mitigation plan. That is a federal requirement, and it is often tied to having access to federal funding. Included in that mitigation requirement in 2015 was a FEMA requirement that we not just look at the past and the history, and try to project on that basis, but we now take a look at the science surrounding climate change to anticipate an increase in risk and vulnerabilities. You know warmer air holds more water, thus there will be more rain. Rising sea level means stronger storm surges, etc. So it is an ongoing process, but it is more than just one component. As Dr. Barbee can tell you, recovery is a very important part of preparing. When you recover from one disaster, the idea is to make the community stronger, make it more hazard resilient as you recover. And I will let Dr. Barbee say a few words about this.

BARBEE: I want to go back just a little bit, before we get into recovery and think a little bit more about the University's footprint and the area of impact. The area here, particularly Robeson County. First of all, our county is the largest in the state, about 944 square miles. Second of all, this county has an unusual topographic outlook. Basically Robeson county is somewhere on the average of between 125 and 150 feet above mean sea level, which means that it is flat and water is not going anywhere. In fact, even in normal times, you can get a couple of inches of rain on this campus and the drains are flat enough that water ponds. So you have a variety of issues like that, in addition to the fact, and this is speaking more to planning, preparedness, and response, the county is rural. It is a large county and it has no major large cities, with the exception of Lumberton, which is only about 22,000. After that it really drops off. The point being this, that the ability of the responder community first of all, there is not that many of them. Second of all, many of the ones that did respond so dynamically were volunteers. So, Robeson county and the surrounding counties do have a very strong, what amounts to an interagency compact and a jurisdictional memorandum of agreement with the other counties. So, when the rains started building up, you started having serious issues. The point that I am making is that these floods, the floodwaters are not just moving across the county, or multiple counties, but they were dropping and there they were. So, it was a very difficult time. I talked to a few responders afterward. Mobility, asset location, prestaging, Points of Distribution (PODs) after the fact, all of these were very difficult. I'll just jump ahead a little bit and say that one of the more heroic tasks was done by the workers right here on this campus, in terms of hosting the responder community, including the National Guard, and including the three to four hundred students that remained on campus.

We'll return to our panel in a moment. UNC Pembroke and the College of Arts and Sciences are changing lives through education! Explore our website to learn more about our 16 departments, college highlights and news, as well as find past episodes of 30 Brave Minutes and our digital journal Bravery. You can also support our academic programs, by clicking the donate button. Additional news and events may be found by following us on Facebook at UNCP

College of Arts & Sciences. Remember, wherever you hope to go, whatever you plan to do, you can get there from here!

FREDERICK: So everybody has a plan. The plan changes as new data comes in, but then when the actual event comes, all of these complications prevent you from pulling out the plan and saying, "All right, we're at page two. Let's everybody go." Things get in flux. Morgan, take the perspective, not only from local businesses, but from local families. What were people doing that they told you, that you know about, that they were doing as the storm came in. Other than batteries, and milk and bread.

JONES: I don't think we were prepared at all for the impact of Hurricane Matthew. That is just my personal opinion, thinking about Fuller's and being prepared. We were scrambling, and I don't think we realized at much rain as we were going to get, the impact of the river located right next to the swamp and the flooding. We had no idea. I'm telling you, the night before, and my mom would probably get me for saying this, she deposited, instead of going to the bank and depositing money, she deposited a bag full of t-shirts at the bank. She was freaking out. My uncle had to get in the canoe, and go in the restaurant, and our money bag was floating around. Literally, we were scrambling to make sure everything was safe. We were not prepared at all.

FREDERICK: How do you all start to process the aftermath of the storm? From what the emergency planners did, from what the weather folks were doing, from what the recovery people were doing. What worked? I think you have talked a little about this. What didn't work? How would we do things differently?

SCHNEIDER: Well, of course, in the aftermath of any disaster occurrence, there is a lot of assessment that goes on by the professionals and within the communities. Two things that stand out to me in our experience here was the unprecedented nature of the event. We had never had this kind of event this far inland and it was almost impossible for us to have been as prepared as we would have liked to be. But hopefully what has been happening in the analysis and the aftermath as we rebuild, and we are using a lot of federal money and FEMA assistance and so forth to help the communities rebuild. Hopefully they had flood insurance. I cannot emphasize the importance of having that, by the way. If you are living in a flood prone area, flood insurance is something you absolutely should get. In addition to the actual rebuilding and bringing people "back to normal," we have to appreciate that this storm may indicate that we are dealing with a new normal and that what was an unprecedented event may soon become something that happens, maybe not frequently, but often enough that we may have to make some different decisions in land use, and in building codes, and the like, to strengthen our communities. We may have to do some things that we hadn't thought of previously. That is part of what you do in the aftermath of an event. You try to ask the question: what could we have done better so that our community would stand this impact? What could we have done better so that people would have been better served when the spam hit the pan, if you will? I suspect that activity will be ongoing,

and now, a year later they are still engaging in that assessment and trying to improve and make our community more hazard resilient.

BARBEE: Yeah, I think that is a good point, that the Disaster Mitigation Act of 2000 mandates that, as Robeson county well knows, and the other counties surrounding the university in our service area, the DMA 2000 mandates pre-disaster mitigation plans that are set up so that if there is a presidentially declared disaster there is a series of projects available for almost immediate consideration, at least in terms of improving the resilience as well as the sustainability of the community. The other thing is now, about six or eight years ago FEMA launched a similar recovery directive nation-wide, and so now you find areas like this, that have traditionally not been in the direct pathway of major storms, having to deal with recovery. Well, what do you do if you are in Robeson County? You have a variety of considerations that you have to undertake to deal with. The first one which is being able to respond effectively. I've talked to a few responders and that was a major challenge, mainly because of the way this area is. Basically it is flat; there is nowhere for the water to go. It is unusual to get that much water, but there is nowhere for it to go. Second of all, the infrastructure needs to be improved. Some of the life lines, water, sewer, power, social media, the towers, etc. All of these are going to have to be looked at and they are, in terms of being more resilient because there is a fairly low population area and as a result, governmentally, you don't have anywhere near the amount of responder capability that you might have in other locations and larger cities. The one exception to that, of course, in our service area would be Cumberland County, which is the fourth largest urban area in North Carolina, which is the tenth most populous state. Damages were pretty severe over there. So you have the full menu of the damages, types of damage, recovery options, and you have the full menu of infrastructural capacity, governmental capacity pre-disaster. So now one of the things that I understand is occurring, is that the emergency management infrastructure is being improved through training exercises and possibly new hires, as well as getting out into the community and creating some of the actual organizations like Community Emergency Response Teams (CERTs) that FEMA initiated a number of years ago.

SCHNEIDER: I want to say a quick word about infrastructure because you mentioned that it is very important, not only for Robeson County. Nationwide our infrastructure is aging and it is in a state of disrepair. Somebody has said about eighty percent of everything is broken, or in a state of ill repair. But, in particularly as it relates to natural disasters in all parts of the country the infrastructure, which is aging, which is old, and in a state of disrepair, even at its best was not built to withstand the environmental impacts that we have today, the storms we have today. So, improving infrastructure is a vital priority in every community and particularly in one that has just been hit, it is probably a good opportunity to get some federal funding to help do that.

FREDERICK: When that infrastructure is taxed and something is no longer operational it changes all your planning. The roads that you had imagined sending responders to, or relief supplies to suddenly are impassible. Dennis, you were going to jump in...

SWANSON: And I would agree with Dr. Barbee's comment on this, too. Being a policeman before, and things, we are usually really good about inner-agency cooperation about day two or three in a disaster. On day one, not so much. Even a loss of equipment on Saturday, for instance school district busses that were under water, that have been used to help move things and people around, were lost in the first couple of hours of the storm. There is always those sorts of things, so hopefully it will be an impetus to kind of... and the storm was finicky. On Wednesday, even here in the planning on campus, as late as Wednesday, we were kind of "well it looks like it is not going to do much here other than be a little bit of rain. Then, it wobbled and slowed down and on Friday you are kind of chasing after it.

FREDERICK: What happens next? What are the decisions a year in that need to be made now and how do communities and Morgan, maybe you can jump in on this. How do communities decide when to rebuild a home or a business and when to make a really painful decision not to?

JONES: Yeah. Well, we are still in the process. We finally got word that we can't go to our original location in Lumberton, so we are now in the process of looking for high ground land that is reasonable and that my family can afford. Our intentions whole heartedly are that we want to be back in Robeson County. The hurricane hit in October and by December an opportunity came up in Raeford, North Carolina. We were able to open a second location later. We had seventy-five employees who were traveling, and who are still traveling from Lumberton, Robeson County to Raeford every day for work and we opened two days before Christmas and they were all grateful and excited, but there is no place like home. We definitely want to be back in Lumberton. It is just finding the right location, the right fit for our business.

FREDERICK: The flood plain is preventing you from?

JONES: Yeah. And we had to gut the Fuller's. We pulled all of the wiring out, the sheet-rock, everything is... it is a pretty sad situation, so we can't go back there.

FREDERICK: Dennis, how does the weather community look a year later? What did we do well with our forecasting, with our predicting, with our warning the public? And what challenges need to be readdressed?

SWANSON: I think part of it, and Wilmington did as remarkable job as they could. They could frankly use a few more people who do what I do. From Wilmington to Laurinburg, I'm looking at my map now. There are four reporting stations and three of those are airports that have to have weather stations. It is something, and if you go up to Raleigh, there is a weather station on every block, so they are able to really predict and see what is going on well there. Predicting and forecasting in a rural region without a lot of equipment is difficult. The University has put up a station here. It wouldn't be a bad enterprise to have some remote stations even around the farms

and get cooperation that way. Again, like everything, it takes a little bit of money to do that. It is a good process, because you are only as good as the information you have to work with.

FREDERICK: Dan and Bob, how will having lived through this to various extents change the way you teach and you write and you lecture about these sorts of topics that you all have been experts in for so long?

BARBEE: One of the things that I like to think about is the capacity of a community, including the university and community colleges around our region, and a couple of other colleges and universities, to go ahead and consider building their own capability to respond and recover. There are a variety of organizational modes, if you will, that they can use. As I said before, the community emergency response teams, the CERTs, are born, or spawned by the San Francisco earthquakes of about thirty years ago. So, you do have a variety of options available around the region. You have our wonderful military over at Ft. Bragg with it enormous capacity, you have an urban area in Fayetteville, so I think that one of the things that needs to be occurring now and it is to some extent, is the building of a network so that when you get beyond a single ICS response in a single community like Pembroke or Lumberton, or Robeson county, you build it outward and you get into a unified command system and Dennis knows exactly what I am talking about there. The same idea would be true of recovery. The fact is now that FEMA has, last time I checked, their recovery teams that are out right now following the major three hurricanes recently. These recovery teams are a new thing. They are out there and I think Matt Campbell, the head of them, I talked to him and they are in fact, this is a really ripe area for the building of better recovery capability for the direction of what I would call sustainable recovery, of which mitigation is a big chunk.

SCHNEIDER: Yes, I agree with all of that. In terms of changing the way I look at things, or teaching, no, not at all, because I've studied and I know exactly what has happened and why it has happened, and what is probably going to happen next. One of the things that frustrates us in trying to move forward with the sort of things that Dan was just talking about, or trying to improve for the future, is that if you take a look at it within six months or maybe a year at the outside after a disaster has occurred, your window has closed. That window of opportunity stays open for a very short time. It is often said in order to understand the importance of emergency management preparedness, response, recovery, mitigation, you have to have had a major event. But if that major event was six months in the past or nine months, or a year in the past, all of a sudden you forget and the sense of urgency you have about doing something to improve the situation declines. The time to make your progress, to do some of the things that Dan was just talking about is in that six month to ten month window after a disaster has occurred. That applies even to major events like earthquakes in California. You have to jump on it the minute it happens to try to get that progress moving in the first six to eight months after the disaster occurs. I think we are seeing some positive movement in that direction here locally. A few say that FEMA is

more active than ever. At the same time, I kind of fear that six months from now our conversation about this will not be quite as urgent.

FREDERICK: Let's end with kind of a quick lightening round. One year later: when you think about Hurricane Matthew, what comes to mind is.....?

SCHNEIDER: The look on people's faces when you went around the community, once you were able to, and you went to pick up some food or water. Just the look of shock and dismay. We tried our best, my wife and I, to advise people on how to contact FEMA to get some immediate relief and that sort of thing. It was amazing how very few people knew to do that. My recollection is that absolute look of shock and not knowing what they should have known, which means we should have done a better job of communicating both before and during the event, so that people knew how to contact FEMA to get immediate assistance.

FREDERICK: How about the rest of you? One year later, when you think of Matthew, you think of what?

JONES: Just the heartbroken community and just complete exhaustion. Like I said, my family were getting ready to celebrate thirty years in business, a legacy that my grandparents started, and everything just in a matter of a few days.....heart broken.

SWANSON: Like I said, I was new to the community and had been here only a few months, but it reminded me so much of the North Ridge earthquake, which I lived through, and responded through. Houses two miles from me that not only was the house gone, the lot the house sat on was gone. The same sorts of things here, where the flood waters not only wiped out the house, the channel of the river, I'm sure is changed significantly in places and the land where the house was probably doesn't exist anymore in a useable state. That was the takeaway. The interpersonal relationships, I didn't have that many at that time, but the shock from talking to longtime residents. I would stop and talk to people and they had utter disbelief that anything like this could ever possibly have happened in the community.

BARBEE: In my field of Political Science and Public Administration, and having worked in this field for a number of years, one of the things that I discovered after this. First of all, I got a lot of calls from students right in the middle of this. I got a call from one student who was out in the middle of a pond. I said that is dangerous. There could be snakes or anything else. It is only October. She said I better move on out and get out of here because I'm almost up to my waist in the water. This is what I think: I think that if we are going to have sustainable recovery that now is the time to do it. We need to consider the fact that, as Dennis said, we are going to have to consider this literally from the ground up. That is to say, we are going to have to take governmental institutions, community institutions, faith community folks, and put them all together into a single unit because of the fact that when we do have disasters in this region, and

you can almost count on it in the future. They are going to be catastrophic. Sustainable recovery is going to demand that we build our own capacity to respond and to mitigate and to recover in the future.

FREDERICK: And I think as we close, what I will remember a year later about Hurricane Matthew, is that in spite of the tragedy, all of the ways in which ordinary people came together to look out for each other, to lift each other into boats, to get out of water-filled neighborhoods, to check on each other, and to gather around a generator, to share some coffee or to charge up their car phone so that they could reach out to other people around and reconnect. I want to thank the panel today for their time and their expertise. A really interesting recollection a year later from Hurricane Matthew. If you enjoyed *Thirty Brave Minutes* today I hope you will pass it along to a friend. See you next time.

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