



Written Testimony

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North Carolina Department of Environmental Quality

Hearing on the North Carolina Flood Resiliency Blueprint

Testimony before the

Joint Legislative Commission on Governmental Operations Subcommittee on Hurricane Response  
and Recovery

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Good morning Chairman Bell, Chairman Jackson, and Members of the Committee. I appreciate the opportunity to testify about the Department's work on the Flood Resiliency Blueprint. This is a historic endeavor, as we build a first-of-its-kind program to take a comprehensive, statewide approach to flood resiliency, and we're honored that this responsibility was entrusted to DEQ.

Today I'll talk to you about where we are in the process of developing the Blueprint and how we will leverage it to implement meaningful projects that increase resiliency across the state. I want to be clear that the end goal of this project is making North Carolina and our residents more resilient to storm events—the Blueprint is a tool to get us there.

North Carolina is no stranger to flooding. I remember growing up in Smithfield and experiencing the Neuse River flooding 30 years ago. There were big events I experienced – the eye of Hurricane Fran going over our house, and the extensive damage that took both lives and property. There were other events that caused the Neuse to overflow its banks, making some roads impassable.

It's only gotten worse since then. We're experiencing more frequent and more intense storm events. Hurricanes and tropical storms such as Fred, Florence, Michael, and Matthew have caused billions of dollars of damage and loss of life, and we know it's a matter of when, not if, we see another storm of that magnitude. At the same time, we're continuing to see flooding in communities without a major hurricane. Three inches of rainfall is all it takes for the Lumber River to overtop. Just a couple of weeks ago, we saw a storm come through that caused flooding across the state, even causing a highway in Cabarrus County to buckle under high water, and left tens of thousands of people without power<sup>1</sup>. I know you all have felt and seen the impacts of this storm and many others in your homes and across your districts.

At the same time, North Carolina's economy is booming. We're seeing steady population increases and record economic development. CNBC named North Carolina the #1 state in the country to do business two years in a row, which I know we all take pride in. With that growth comes more people, more buildings, more roads, and more infrastructure that we need to protect, and more impervious surface that increases our flood risk and puts more of our residents at risk. I appreciate your support for this project, both in having the vision and foresight to appropriate significant funding to make it a reality and for your actions to ensure that we have the staff to begin implementing the Blueprint.

Making our state and our residents more resilient to future storm events is what the Blueprint will accomplish. This is not just another report that is going to sit on a shelf and gather dust. The Blueprint is intended to be a living instrument that enables smart investments in projects that will make our state more resilient in the face of more frequent and more intense storm events. As our population and economy continue to grow, it is vital that we take steps to ensure that storms are not as disruptive to the daily lives of our residents. The Blueprint and its online tool will

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<sup>1</sup> Doug Coats, "Cabarrus County Highway Shut down after 'buckling' from Flooding," Queen City News, January 10, 2024, <https://www.qcnews.com/news/u-s/north-carolina/cabarrus-county/cabarrus-county-highway-shut-down-after-buckling-from-flooding/>.

be accessible to decision-makers at all levels, giving them the information they need to make smart decisions about where to locate critical infrastructure, assess the impact of policies before they are adopted, and invest in projects that both support their community and provide flood resiliency.

I've traveled throughout the state to visit with communities that have repeatedly experienced flooding. I've spoken with a widow whose husband perished in the landslides following the flooding in Haywood County in 2021. I've visited a neighborhood and school in Lumberton that were abandoned after a significant flooding event. I've met with officials in Southeastern North Carolina, including local leaders in Navassa, where they showed me a single housing development that will double the town's population in a town that already feels the effects of flooding. I've also been heartened to hear how leaders across our state are being proactive—undertaking planning and looking at projects that will provide water a place to go, offsetting the increase in impervious surface that comes with growth.

In order for the Blueprint to be successful, it has to be more than a document. It must empower local, state and federal leaders and stakeholders to plan for the future so that we protect lives, livelihoods, and property.

Before I talk about the future of the project, I do want to take a moment to step back and share with you our progress to date.

North Carolina has a track record of being at the forefront of some of the biggest challenges facing the nation. Under Governor Cooper's leadership, we've led the way on PFAS, water infrastructure, and clean energy. The Flood Resiliency Blueprint is the first of its kind in the country. No other state has developed something to the scale and magnitude of what we are building here. We've spoken with other states, like Louisiana, Texas, Florida, and others, and there are lessons learned from each of them that we are applying to our Blueprint.

Beyond looking at other states, we are learning from the experience of some of our own local governments that have established programs— like Mecklenburg County, which has had a flood resiliency program since 1998. In addition to Mecklenburg County, there are a number of other local government entities who have been facing flooding issues for years and so have become experts by necessity. We have invited their input throughout this process, alongside experts in academia and the private and public sectors, including in other state agencies such as Emergency Management, the Department of Transportation, and the Department of Agriculture. By bringing in all of these groups from the beginning, we are able to create better outcomes for the residents of North Carolina, continually iterating and improving the Blueprint so that it best meets the needs of our state.

We also need to leverage all the resources we already have in the state. The intent is not to recreate work that's already been done or replace existing programs. The Blueprint is designed to unify all of the existing resources and knowledge we have into one platform to help decision makers at all levels—state and local leaders—make better policy and funding decisions. It will

serve as a one-stop-shop that provides a comprehensive approach to flood resiliency across the state by creating a standardized methodology for flood planning, an online decision support tool, and river-basin specific strategies to address flooding for communities in North Carolina.

As we know, flooding doesn't just come in one shape or size. Whether a community is urban or rural, on the coast or in the mountains— where you are in the state impacts the type of flooding you experience. So, there's not a one-size-fits-all solution, and the Blueprint takes that into account. Solutions for flash flooding in the west are different from solutions to coastal flooding. We need to understand the particular characteristics of a place to understand what the best mitigation strategy for it is, and that is what the Blueprint allows us to do.

By confidently investing in projects that will increase resiliency in our state, we will be able to help communities bounce back more quickly, and avoid the worst of the damage, when flood events do occur. With a higher capacity to withstand flooding, we will mitigate the worst impacts on residents and property. For example, I recently heard the story of one individual in Burgaw, in Pender County, who was stranded due to washed-out roads and couldn't get back to their home for eight days. With the right investments, we can minimize these disruptions to people's lives.

But we can't keep throwing darts with a blindfold on and expect to hit the target. To make sure we know what the projects with the best return on investment are, we are developing a standardized methodology to analyze flood risk and prioritize flood mitigation strategies across the state. We are ensuring that decision-makers at all levels will be able to identify and select which strategies are most impactful where *they* are with an online decision-support tool, which I'll show you a model of later. Importantly, we are making sure that the process goes beyond planning to actual implementation of projects: because we know that the measure of success won't be what the Blueprint says, but the impact on the residents of our state.

A key tool in helping us forecast those impacts is the hydrologic and hydraulic modeling that we are doing: we have chosen to use what's called 2D Modeling, which goes a step beyond the typical modeling done by FEMA. That accounts only for river-based flooding and is based on analysis of past events— but the storms and floods we are experiencing now are *making* history. So, this 2D type of modeling allows us to look forward and consider future conditions, including many more types of flooding and the increasing frequency and intensity of storm events.

Through Phases I and II of the Blueprint development process, we have obligated nearly \$6 million of the \$20 million that was appropriated to this project. Roughly \$1.9 million was spent on contracting Phase I, which has resulted in the Draft Blueprint and simultaneous development of the Draft Neuse River Basin Action Strategy, in addition to significant accumulation of knowledge that will allow us to continue making smart investments. Another \$4.08 million is contributing to the development of the online decision-support tool, which will allow decision-makers across the state to easily access and benefit from the data, modeling, and analysis that has been done. The remainder – around \$14 million – will support the development of river basin action strategies for the next five prioritized basins: the Cape Fear, Tar Pamlico, White Oak, Lumber, and French Broad.

We're creating a novel product on a very ambitious timeline. This has been, and will continue to be, an iterative process. When you do something new, you're going to learn a lot along the way: we have already learned from the process so far, and we have been able to incorporate much of the feedback we've received to accelerate our progress moving forward. As we go, we will continue to iterate, learn, and adapt.

We are finding ways to strike a balance between accomplishing the statewide planning process and beginning to implement projects, because we know that storms and floods aren't going to wait for us. The General Assembly allocated \$96 million to DEQ to become available after the Draft Blueprint was finished. We intend to use what we've begun with the Draft and from the Neuse River Basin Pilot to start putting projects in the ground this year. At the same time, we will be refining the planning process and Basin Action Strategies in parallel. We know more today than we did a year ago, and our goal is to begin helping some of the most impacted communities as soon as possible. In the Neuse Basin, we've already identified a list of potential projects and are actively prioritizing them for quick implementation, and as we expand to other river basins over the next year, we'll do the same thing. It's important to start implementing these key projects while we continue development of statewide and basin-specific strategies.

We are building this plane as we fly it. So, in order to get these projects started as efficiently as possible, we are working in parallel on a process to begin funding the highest-priority projects while refining our methodology to continue prioritizing additional projects. The data from these initial projects will be incorporated into the Blueprint as we continue to iterate our strategies. This is the same approach that has allowed us to develop the Draft Blueprint and the Draft Neuse River Basin Action Strategy concurrently, testing ideas by putting them into practice. With the draft Neuse Action Strategy in its final stages of development and time being of the essence, we will be moving forward with initial projects from those recommendations in the coming weeks and months.

As I mentioned earlier, we are also excited about the development of a tool that will help you and others at all levels of government, as decision makers, to visualize and identify priorities within your communities and make informed funding decisions. The Blueprint's online tool will allow you to zero in on your area of the state; overlay GIS layers to see where various flood hazards are co-located and who is impacted by them; and select from a range of strategies to improve resiliency and see where your investment will generate the greatest return. You will be able to not only access this information yourself but share it with others to clearly see dashboards and metrics on spending, risk reduction, and milestone completion, in addition to providing information on potential funding sources.

The Blueprint website is already available, which you can access through the QR code in the corner of the screen. It is a publicly-available repository of all the reports, stakeholders, and major actions that have been generated, involved, and accomplished so far. As we continue to move forward, more resources will continue to be added.

This is just the beginning of what will be the most comprehensive statewide flood resiliency effort in the country. The Blueprint is the largest statewide flood mitigation investment in North Carolina's history, and the decisions we make from it will protect not only ourselves and our communities, but our children and our children's children. I am excited to continue working on this project with you all, and I thank you again for your trust and investment in our agency to build a more resilient North Carolina.