

Flood Warning System



Stream gauge on NC 42 bridge over Neuse River in Clayton

NCDOTcommunications



Watch on

The flood warning system provides critical, real-time information that helps the N.C. Department of Transportation prepare, respond and recover from hurricanes, flash floods and other severe storms.

The system relies on various climate-related data and stream gauges to help monitor thousands of bridges and culverts across the state, as well as corridors – such as U.S. 64, U.S. 70 and I-40 and I-95 – at risk of flooding during a storm.

Operated by the department's Hydraulics Unit, the flood warning system became fully operational in 2022 through a \$2 million grant by the N.C. General Assembly in the wake of Hurricane Florence, which caused massive flooding across the state in 2018.

In 2023, the system was nationally recognized by the American Association of State Highway Transportation. In the spring of 2024, the Federal Highway Administration awarded NCDOT an Environmental Excellence Award for its flood warning system.

How the System Benefits the Public

- The system has the potential to save lives.
- Helps NCDOT staff efficiently deploy its resources during a storm.
- Can be used to better warn emergency responders and the public of any potential problems on North Carolina roads due to flooding.
- Information from the system that is confirmed by crews that inspect a road or bridge can be entered into [DriveNC.gov](https://www.drive-nc.gov), which provides the public with updates on traffic problems, road conditions and closures.

How Does It Work?

The flood warning system collects data from various local, state and federal agency partners, which collectively operate a network of over 500 river or stream gauges across the state.

The partners include N.C. Emergency Management, U.S. Geological Survey, National Weather Service, National Hurricane Center, Southeast River Forecast Center and U.S. Dept. of Homeland Security's Coastal Resilience Center of Excellence directed by UNC-Chapel Hill.

During a storm, the system automatically generates email or text alerts to warn NCDOT maintenance and bridge crews of potential problems. State and local emergency officials can also sign up for the alerts.

Three Components of the System

The system is comprised of these three computer modeling programs that receive such data as rainfall amounts, river forecasts and storm surge predictions:

- **Flood Inundation Mapping and Alert Network for Transportation**, which covers over 2,400 miles of state-maintained roadway, primarily in eastern and southeastern North Carolina.
- **BridgeWatch**, which monitors more than 15,800 bridges and culverts statewide.
- **Transportation Surge Analysis Predictive Program**, which monitors 11,000 miles of roads vulnerable to storm surge near the coast.

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