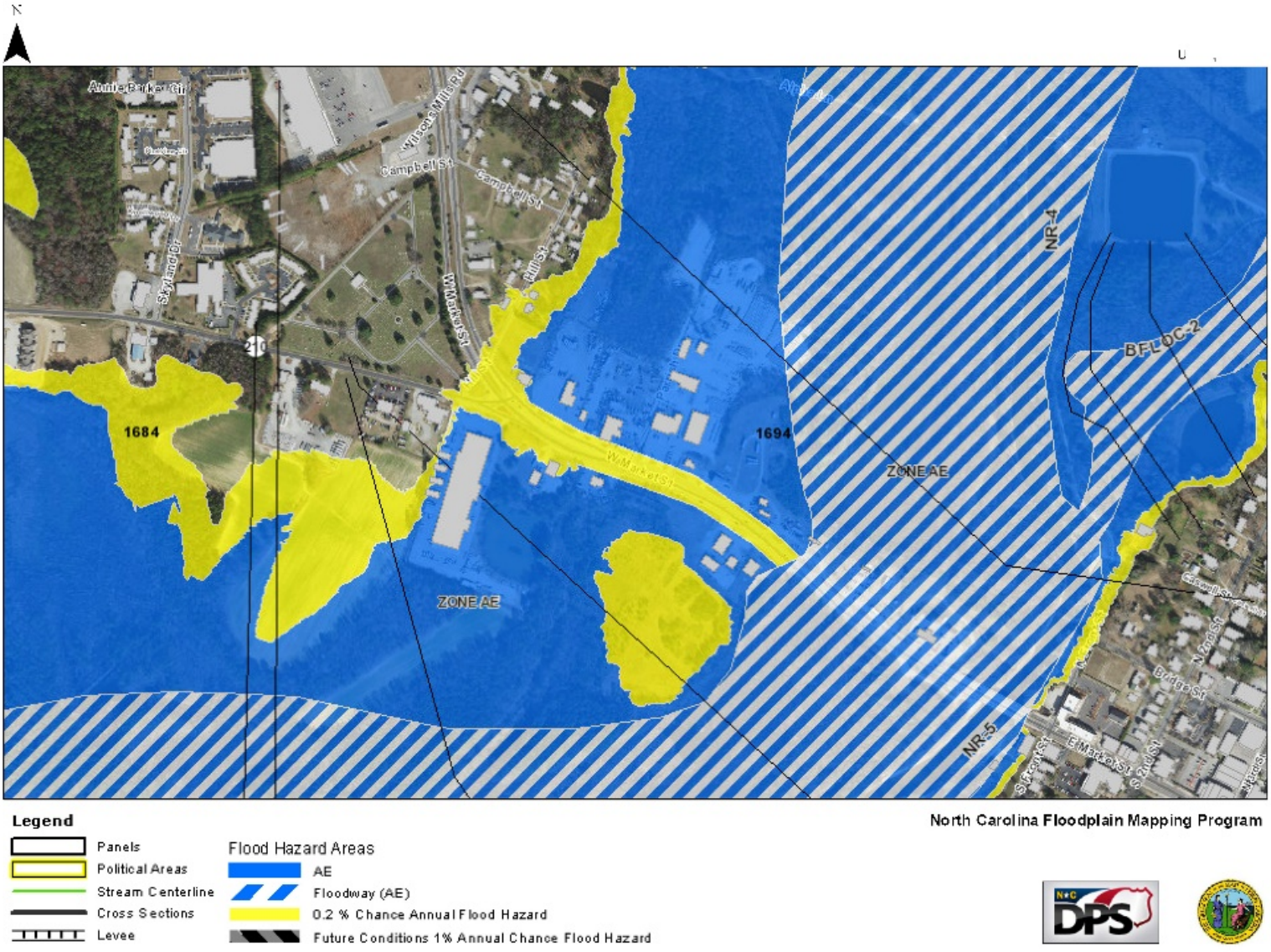
N.C. Department of Transportation

Floodplain Management

What is a Floodplain?

A floodplain is the land area adjacent to a river or stream. The width of a floodplain is variable. For example, a 100-year flood would typically have a much wider floodplain than a 10-year or 2-year flood. A property owner's flood insurance is normally based on the 100-year flood event (see graphic and definitions below).



Example of a Floodplain Map

Terms and Definitions

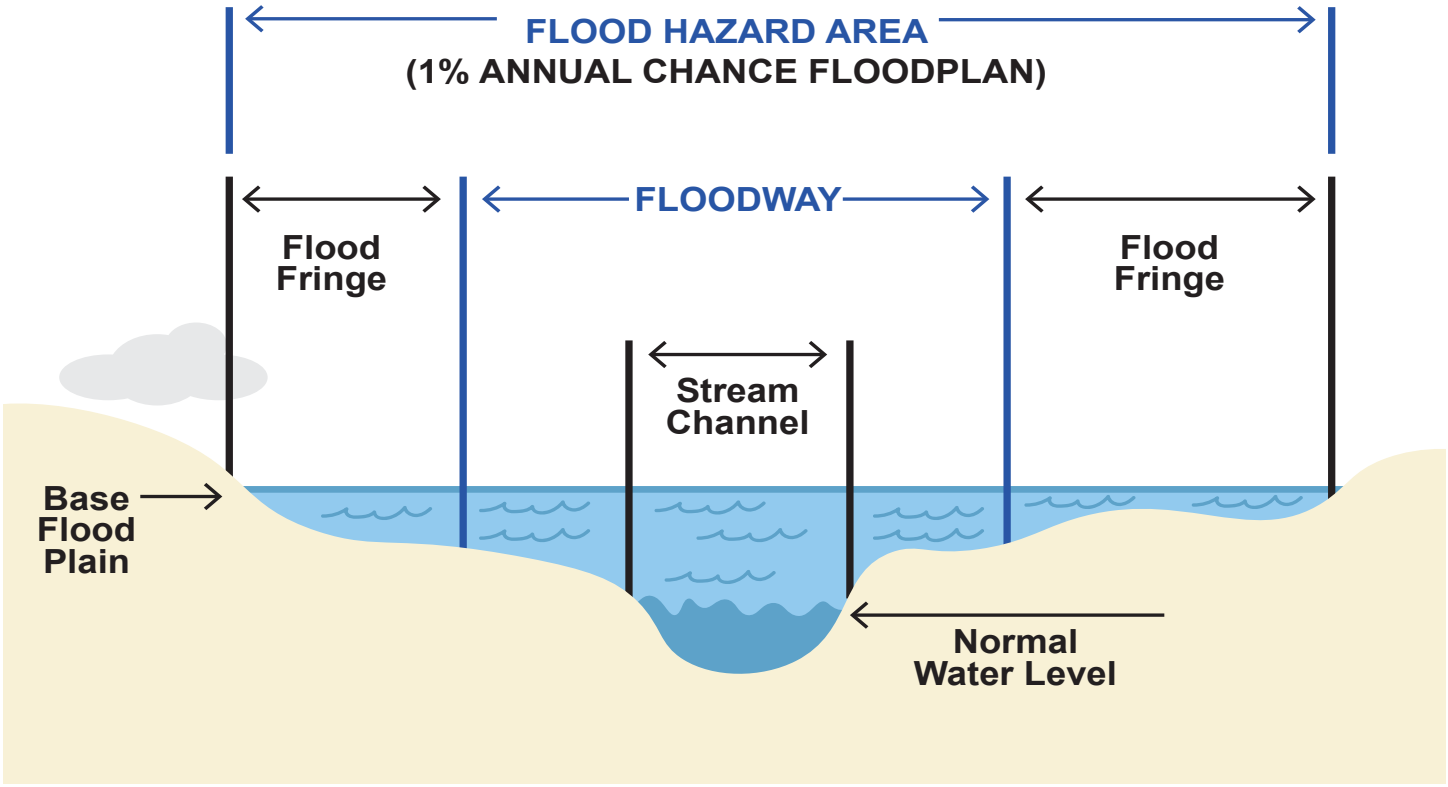
100-year flood event (also known as base flood) means a flood has a 1 percent annual chance of occurrence on a given river or stream. It does **NOT** mean the property will only flood once every 100 years. In fact, if your home is in the 100-year floodplain it has a 26 percent chance of flooding over a 30-year mortgage period. People outside the 100-year floodplain are not free from risk, since not all areas of possible flooding have been identified by the Federal Emergency Management Agency (FEMA).

FEMA uses the term “base flood” because it is the basis on which official floodplain maps and floodplain development regulations are determined.Limits of where the base flood elevation intersects the floodplain define the Flood Hazard Area boundary.

Flood Hazard Area is that portion of the floodplain subject to inundation by the base flood and/or flood-related erosion hazards, which are depicted on FEMA floodplain maps.

Floodway is the regulated width within the floodplain that is comprised of the channel of the stream, plus any adjacent floodplain areas that must be kept free of encroachment. This is so that the base flood can be conveyed without creating an appreciable increase in the base flood elevation (an acceptable regulatory tolerance is usually no more than 1 foot).

Flood Fringe is the remaining portion of the floodplain outside of the floodway.



What is NCDOT doing to manage impacts to floodplains?

NCDOT is committed to the goals of the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) to:

Encourage a broad and unified effort to prevent wasteful, hazardous or incompatible use and development of the nation's floodplains

Minimize impacts of highway agency actions that adversely affect base floodplains

Restore and Preserve the natural and beneficial floodplain values that could be adversely impacted by highway agency actions

Before and after stream restoration (Claridge Nursery stream, Goldsboro, N.C.)

Collaborate with North Carolina Emergency Management (NCEM) to facilitate FEMA NFIP regulatory compliance for NCDOT projects, and coordinate for preparedness and recovery efforts in extreme weather events.

What is required of NCDOT to manage impacts to floodplains?

It is the policy of NCDOT to abide by federal and state floodplain management regulations and rules. These include:

- FEMA's National Flood Insurance Program (NFIP) under the Code of Federal Regulations (CFR) Title 44
- FHWA's Federal Aid Policy Guide, Location and Hydraulic Design of Encroachments on Flood Plains (23 CFR 650 Subpart A)
- Memorandum of Understanding (MOA) by FHWA (Federal Highway Administration) and FEMA (June 1982)
- Presidential Executive Order 11988 – Floodplain Management
- North Carolina Governor's Executive Order 123 (July 1990) – Uniform Floodplain Management Policy

How do I know if my property is in a FEMA flood hazard area?

Properties affected by a project are identified on the public meeting map, which will include a depiction of the major streams crossed by or near the project limits. If one of these streams is on or near your property, you may visit the State's Flood Risk Information System (FRIS) website at https://fris.nc.gov/fris/. The website allows you to enter your address or use web map navigation tools to locate your property and verify whether it is within or near a mapped flood hazard area.

What is NCDOT doing to manage floodplains and protect citizens, their property and the environment?

Field Reconnaissance and Surveys

Engineers walk the project site to identify areas of flooding concern. They look for evidence of different types of major and minor flooding such as:

- **Nuisance/Surface Flooding (minor**) – caused when heavy rainfall creates a flood event independent of an overflowing water body. Nuisance flooding does not pose significant threats to public safety, but can disrupt day-to-day activities, put added strain on infrastructure systems, and cause minor property damage.

Nuisance/Surface Flooding

- **Riverine Flooding (major)** – when excessive rainfall over an extended period causes a river or stream to exceed its capacity. This flooding can occur days after the rain event and cause major property damage. According to FEMA, riverine flooding is the most common flood event.

Riverine Flooding

Design Studies

After gathering information and field data, NCDOT engineers analyze records of past flood events (where information exists) and assign probabilities to future events. They will also consider the uncertainty of flood models and potential changes in weather, development and drainage.[1] With this information, NCDOT engineers can appropriately base their design on these findings.

Flood Resiliency

NCDOT defines an area as more flood resilient if its vulnerability or potential damage from flooding is lower. This means damages must be minimized so normal life can return as soon as possible after a flood. Flood resiliency designs do not use defense schemes that try to “fight against floods”, but rather find a better way to “live with floods” by lessening their impacts.

What can I do as a citizen?

There are many actions you can take to help prepare and protect yourself, your property, and your neighbors:

DO understand your flood risk by visiting the FRIS website referenced above.

DO notify your local NCDOT or division office of any drainage or flooding issues thought to be caused by a DOT facility or project. Contact information can be found at: https://www.ncdot.gov/contact/Pages/default.aspx.

DO notify a member of the NCDOT project team if you are aware of major flooding issues/areas so that these can be evaluated, considered and addressed in the design phase.

You can also post a comment directly to NCDOT's Hydraulics Unit by visiting: https://apps.ncdot.gov/ContactUS/Home/PostComment?Unit=Hydraulics

Where do I find more information?

National Flood Insurance Program (NFIP) information can be found at: https://www.fema.gov/national-flood-insurance-program

Flood NC website is at: https://flood.nc.gov

Many of the websites and resources mentioned above can also be found on the NCDOT Hydraulics Connect site: https://connect.ncdot.gov/resources/hydro/Pages/default.aspx or by scanning the QR code shown to the right:

References

[1] Brian Bledsoe (September 13, 2017), "We Still Don't Know How to Talk About Floods", The Washington Post