



*Helping Communities face the challenges and impacts of growth while maintaining their character and sense of place.*

## Flood Hazard Area Zoning

Although rivers and streams may increase the aesthetic value of a property, individuals that reside within floodplains may be at risk from the dangers of flooding. This hazard occurs when the capacity of a stream channel has been exceeded often leading to property damage, soil erosion, and physical harm to humans. The affected land directly abutting the stream or river is known as the floodplain which helps reduce downward erosion in the riverbed and lateral erosion of the riverbanks. Communities generally mitigate these issues through flood hazard planning that address storm water management, erosion and sediment control, and shoreline and wetland protection. In addition to these local ordinances, there are several state and federal programs that provide financial assistance for projects designed to minimize the impacts of flooding.

**iTRaC** is the Nashua Regional Planning Commission's new approach to community planning that focuses on integrating transportation, land use and environmental planning. The program was developed to assist communities in dealing with the challenges of growth in a coordinated way that sustains community character and a sense of place.

### National Flood Insurance Program

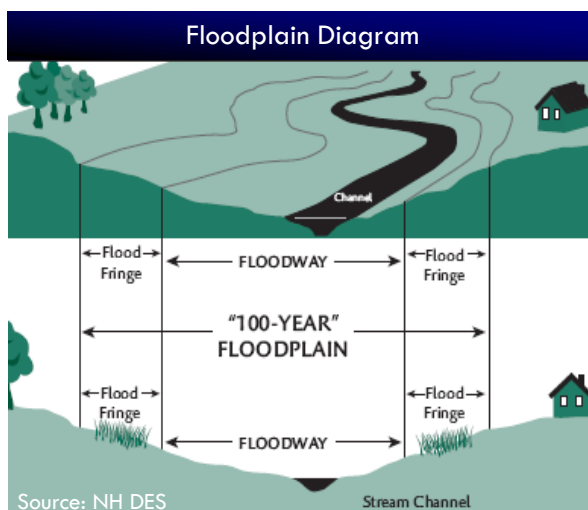
One of the most important legislation associated with flooding is the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). The main objective of this program is to set minimum floodplain regulations for municipalities to adopt. These initiatives were a direct response to the lack of flood insurance firms and to lessen the rising costs of disaster relief. However, property owners are only eligible to receive these benefits if their community has a regulation requiring housing units to be lifted to or above the 100 year floodplain. It is also mandatory for non-residential structures to be flood resistant and restrict floodway encroachment. At the statewide level, the New Hampshire (NH) Office of Energy and Planning ensures that all flood related model ordinances enacted in NFIP participating communities comply with the minimum requirements standardized by FEMA.



Source: NRPC Staff



Source: NRPC Staff



Source: NH DES

### Assessing Flood Probability

Determining where and when a flood may occur is an important consideration toward coexisting with these hazards. By measuring the level of rising water with regards to certain conditions upstream, engineers are able to calculate the potential risk of a flood in a particular area. Land designated as being prone to flooding has at least a one percent chance of being covered by a flood in any year or has a 100% chance of being flooded within 100 years. This national standard used by all flood control programs is also known as the 100 year floodplain.



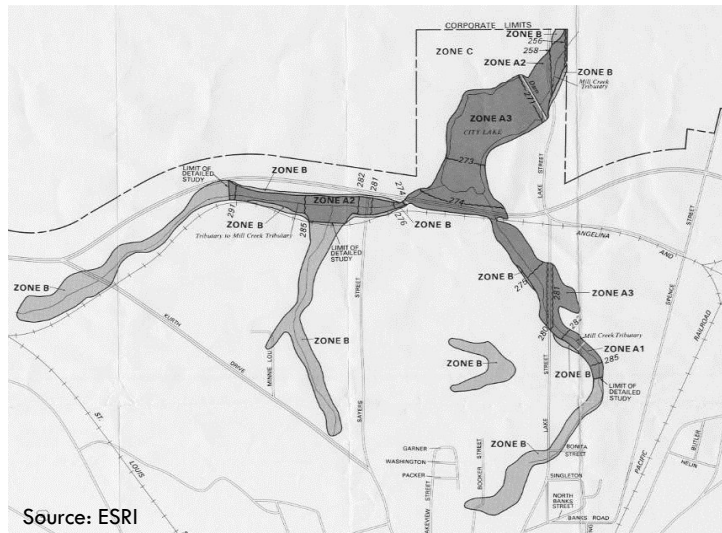
Nashua Regional  
Planning Commission

9 Executive Park Dr.  
Suite 201  
Merrimack, NH 03054

Phone: (603) 424-2240  
Fax: (603) 424-2230  
www.nashuarpc.org

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FIRM of Mill Creek Watershed in Lufkin, Texas

## Flood Insurance Rate Maps

In order to help identify the approximate extent of flooding, FEMA constantly develops and updates a series of Flood Insurance Rate Maps (FIRM). These maps illustrate risk zones for flood insurance, the 100 and 500 year floodplain, floodways, base flood elevations, and the various physical features located throughout the floodplain. In addition, FIRMs can assist community leaders toward developing floodplain management regulations for both existing and proposed structures. For an extensive list of the numerous flood hazard zone designations used in the FIRMs, please refer to Table 2.7. 1 within the *Innovative Land Use Planning Techniques Handbook*. This resource can be accessed at the following link, [http://des.nh.gov/organization/divisions/water/wmb/repp/documents/ilupt\\_chpt\\_2.7.pdf](http://des.nh.gov/organization/divisions/water/wmb/repp/documents/ilupt_chpt_2.7.pdf).

## Noteworthy NH Floods Over the Past Decade



2005, Alstead Flooding



2006, Raymond Flooding



2002, Merrimack Flooding

## Flood Hazard Overlay Districts

Introducing a Flood Hazard Overlay District (FHOD) is ideal for any community with flood hazard areas mapped by FEMA. The purpose of FHODs is to protect the health and safety of the public by encouraging the most suitable forms of land uses within flood hazard areas. This ordinance is designed as an overlay district, but can be altered for communities wanting to create a flood hazard zone. Considerations when adopting and coordinating this district can include;

- Regularly maintaining and inspecting dams;
- Preventing erosion and sediment loss during and after construction;
- Protecting wetlands and vegetation abutting the shoreline;
- Establishing shoreline setbacks from streams and rivers to reduce interactions between humans and floods;
- Reviewing subdivision regulations to ensure they do not allow the creation of lots without access points and buildings over the base flood elevation;
- Informing the general public about the availability and affordability of flood insurance;
- Planning and designing roads and culverts to better withstand the impacts of flooding.



For more details on this topic or an overview of the entire iTRaC program, visit [www.nashuarpc.org/landuse](http://www.nashuarpc.org/landuse).  
or contact Camille Pattison, iTRaC Program Manager, at [camillep@nashuarpc.org](mailto:camillep@nashuarpc.org) or 603-424-2240 x14.  
Nashua Regional Planning Commission in partnership with the NH Department of Transportation & the NH Office of Energy and Planning.

