

Keene



# Marlboro Street

## ZONING AND LAND USE REGULATIONS PROJECT



APPENDIX C | **FLOOD RISK MANAGEMENT STRATEGY**

## Marlboro Street Zoning and Land Use Regulations Project

**Keene Flood Risk Management Strategy**

Based on recent events, the City is clearly being impacted by significant flood hazards and associated property damage. The need is to manage the risk associated with flood events. The suggested approach is a risk management strategy that includes definition of the flood hazards through mapping of the flood events, education about the hazards and the means to prepare for events, and regulatory standards that provide an appropriate level of protection. By approaching these actions through the FEMA Community Rating System program, the City in turn can reduce the costs of the flood insurance premiums that are applied within the City.

**1. Floodplain Mapping****a. Creation of database to supplement the FEMA FIRM sources:**

FEMA Flood Insurance Rate Maps (FIRMs) are calculated from information available in previously generated reports of rainfall and runoff. In the methodology historic data is considered in the confirmation of calculated flood elevations. However, historic trends indicate flood events may be increasing in size and intensity. Information is to be collected so it may be incorporated into revised calculations of the flood elevations and hazards.

**b. Remapping of the Flood Hazard Areas:**

With additional and more detailed information, the City may update the flood hazard areas and re-map the regulatory flood plain boundaries using the FEMA amendment procedures.

**2. Flood Preparedness and Education****a. Preparing all sectors of the City for a major flood event:**

This includes the distribution of information to residents, businesses, and institutions for coordinated responses to flood events. This also includes review of flood event preparedness plans, equipment and facilities, and the updating and posting of plans for post-event actions.

**3. Regulations and Performance Standards****a. For Flood Zone A (any of the A, AE, A1-30, AO, or AH) designated areas:****i. The requirements for new construction:**

1. Lowest floor elevation above Base Flood Elevation [BFE] by a freeboard that is dimensioned according to the use:

- a. One-foot freeboard for all non-residential uses.
- b. Two-foot freeboard for all residential uses.

2. Compensatory storage shall be provided on-site at a 1:1 building volume: compensatory storage ratio, and at a 1:2 for off-site compensation.

3. Soils testing and engineer certification of foundation systems to withstand the predicted flood event at the property.

**ii. The requirements for modification of existing buildings:**

1. In a residential or mixed use project there will be no habitable spaces below the BFE plus 2 feet.

2. All utilities shall be flood-proofed above the BFE plus 1 foot.

**b. For areas designated as Floodways:****i. No new construction is permitted**

- ii. When modifications or rehabilitation of existing buildings exceeds 30% of the value of the building, then the existing buildings or portions of those buildings within the designated Floodway shall be removed.
- iii. The requirements of this section may be waived with the submittal and approval of technical analyses that show how the construction will not cause a rise in the BFE or increase the hazards to life and property.

c. Districts:

- i. These requirements shall apply within all Mixed Use, Commercial, and Industrial districts within or adjacent to the Flood Zone A or AE areas shown on the latest FIRMs.
- ii. To request a waiver of these requirements, project proponents must provide all of the following:
  - 1. Plans showing the project site is outside FIRM designated flood zones.
  - 2. Plans showing the project is outside of what is shown in the historical record of flood events.
  - 3. Information sufficient to show that the project site is outside the BFE and is not hydraulically connected to the flood area shown on the FIRMs.

d. Greenway and blueway creation:

Protection of the waterways in the City through setbacks, easements, and fee-simple acquisitions will provide areas associated with the waterways that meet multiple functions of environmental benefit, flood hazard reduction, and recreational opportunity. This is accomplished with:

- i. Adoption of a Natural Resource Overlay district, based on the City's Sustainable Energy Efficient Development (SEED) Overlay District that covers the designated FIRM Floodway area, within which no development is recommended and,
- ii. A natural buffer, flood bench and public access setback with a minimum of 15 feet from the upper limit of the banks (first topographic break) of all named waterways.

4. **Community-wide Planning**

a. Risk reduction coupled with cost reduction:

The City will determine whether to continue to advance the recent participation in the FEMA Community Rating System that improves the distribution of information on ways to take action for protection of people and property, and reduces the flood impacts and hazards to property and infrastructure. This in turn reduces the flood hazards to insurable property, reduces claims and the cost of claims, and therefore allows lower flood insurance premiums. Discounts on insurance premiums range from 5% to 45% depending on the class rating obtained by the community. The City of Keene enlisted in the program in 2002 and is currently at a Class 8 (with 10 being the lowest and 1 the highest), which provides a 10% flood insurance premium reduction within Special Flood Hazard Areas and a 5% reduction outside of these areas.