

New York City is highly vulnerable to flooding from coastal storms due to its intensively used waterfront and its extensive coastal geography. Floods have the potential to destroy homes and businesses, impair infrastructure, and threaten human safety. With climate change and sea level rise, these risks are expected to increase in the future, but will most adversely affect low-lying neighborhoods.

Flood Risks

Hurricanes, tropical storms, nor’easters, intense rain storms, and even extreme high tides are the primary causes of flooding in NYC.

For building code, zoning, and planning purposes, flood risk in NYC is represented on FEMA’s 2015 Preliminary Flood Insurance Rate Maps (PFIRMs).

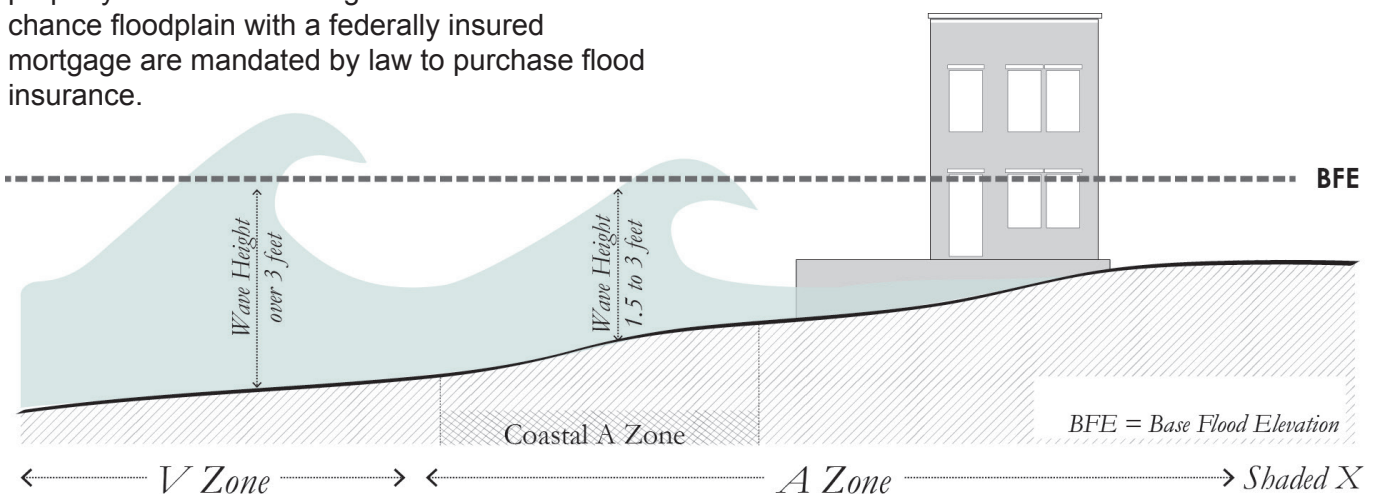
- PFIRMs show the extent to which flood waters are expected to rise during a flood event that has a 1% annual chance of occurring. This height is denoted as the Base Flood Elevation (BFE) on the maps.
- The 1% annual chance floodplain is sometimes referred to as the 100-year floodplain. However, this term is misleading since these floods can occur multiple times within 100 years. In the 1% annual chance floodplain, there is a 26% chance of flooding over the life of a 30-year mortgage.

For flood insurance purposes, refer to FEMA’s 2007 Flood Insurance Rate Maps (FIRMs). All property owners of buildings in the 1% annual chance floodplain with a federally insured mortgage are mandated by law to purchase flood insurance.

Approximately who and what is affected by the 1% annual chance floodplain?*	
Residents	400,000
Jobs	291,000
Buildings	72,000
1-4 Family Buildings	53,000
Multifamily Buildings	5,000
Residential Units	183,000
Floor Area (Sq. Ft.)	532M

The number of New Yorkers living in the city’s floodplain is higher than the entire population of Cleveland, OH, Tampa, FL, or St. Louis, MO.

* These numbers are based on FEMA’s 2015 PFIRMs. In October 2016, FEMA announced that the City won its appeal of the PFIRMs and has agreed to revise New York City’s flood maps. For now, the 2015 PFIRMs are in use for building code, zoning, and planning purposes, while the 2007 FIRMs remain in use for flood insurance. For more information on the appeal visit www.nyc.gov/floodmaps.



The 1% annual chance floodplain is divided into three areas—the V Zone, Coastal A Zone, and A Zone—and each has a different degree of flood risk. V and Coastal A Zones are vulnerable to waves, while the rest of the A zone is vulnerable to flooding but not wave damage. The maps also show the 0.2% annual chance floodplain, denoted as the Shaded X Zone, which has a lower annual chance of flooding than the A Zone.

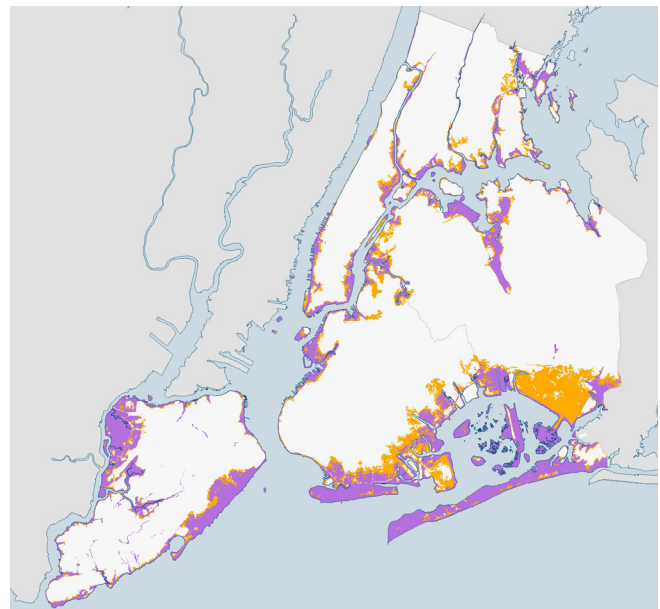
Future Flood Risks

With climate change, the risk of coastal storm surges, intense rain, and high tides will increase.

- Sea levels in NYC have already risen a foot over the last 100 years.
- According to the New York City Panel on Climate Change, sea levels are expected to increase between 8 to 30 inches by the 2050s, and as much as 15 to 75 inches by the end of the century.
- Sea level rise will lead to frequent, potentially daily, tidal inundation in some especially low-lying neighborhoods. This type of flooding causes less damage than extreme storms, but can be a nuisance and has significant long-term impacts on public safety and City services.

Higher sea levels mean the future 1% annual chance flood will cover a larger area and affect more people.

- By the 2050s, the number of people living in the 1% annual chance floodplain could more than double.
- The annual chance of major storms will also increase. What is a 1% annual chance storm today will have nearly a 3% annual chance of occurring in the 2050s.



2015 PFIRMs 1% annual chance floodplain

2050s projected future 1% annual chance floodplain

Data Sources: Current floodplain impacts based on 2015 FEMA PFIRMs and NYC MapPLUTO version 13. Future flood risk data and information from the New York City Panel on Climate Change (2015); analysis of future flood zone impacts based on 90th percentile projections for SLR and MapPLUTO version 13.

Terms to Know

1% Annual Chance Floodplain: the area that has a 1% chance of flooding in any given year, as designated on FEMA's Flood Insurance Rate Maps.

Base Flood Elevation (BFE): the computed elevation in feet to which floodwater is anticipated to rise during the 1% annual chance storm as shown on FEMA's Flood Insurance Rate Maps.

Coastal Storm: includes nor'easters, tropical storms, and hurricanes.

Low-lying Neighborhoods: neighborhoods that have a low elevation relative to sea level and are particularly vulnerable to flooding.

City Planning is working with communities throughout the floodplain to identify zoning and land use strategies to reduce flood risks and support the city's vitality and resiliency through long-term adaptive planning. To learn more, visit www.nyc.gov/resilientneighborhoods.

About the Department of City Planning

The Department of City Planning (DCP) plans for the strategic growth and development of the City through ground-up planning with communities, the development of land use policies and zoning regulations, and its contribution to the preparation of the City's 10-year Capital Strategy. For more information, go to: nyc.gov/data-insights