Woodstown Borough: Public Health Exposure Snapshot

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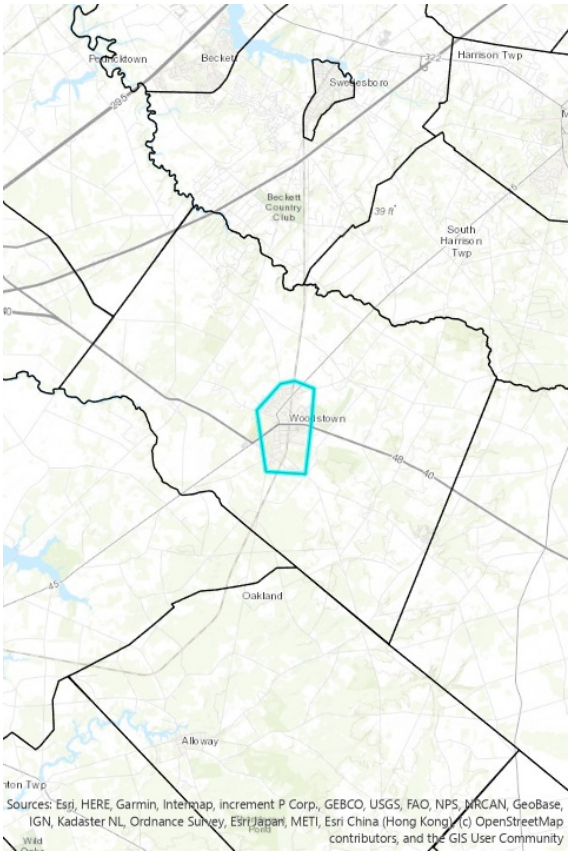
Introduction

Data Last Updated: 2023-09-24 10:43:14

Increasing temperatures, heavier rain events, and the increasing frequency and severity of flood events driven by sea-level rise present numerous impacts to public health that will continue to intensify, while new health threats are emerging.



Health impacts from these various climate-related exposures may include:

- Increased respiratory disease;
- Increased cardiovascular disease;
- Injuries;
- Premature deaths related to extreme weather events (e.g, heat-related deaths; drowning-related fatalities);
- Food- and waterborne illnesses; and
- Mental health impacts (e.g., stress, anxiety and fear).

This public health municipal snapshot is a focused area of development for the Rutgers team. An initial set of data regarding temperature and flood exposure is presented while the Rutgers team is currently actively seeking additional sets of data that can support efforts to advance climate change and public health efforts at the state, regional and local levels.

There are 3 types of flood events:

1. Riverine (or ‘fluvial’) flood events occur when intense rain events cause rivers and streams to overtop their banks.

2. Flash (or ‘pluvial’) floods occur when intense rainfall causes a flood event that is not directly associated with a body of water. For example, flash flood events include floods in roadways from impaired stormwater management systems.

3. Coastal flood events occur when sea-level rise, high tides, and storm surge combine to create flood events that range from nuisance high-tide floods to destructive storm tides from seawater.

The Federal Emergency Management Agency (FEMA) models flood hazards, both riverine (1) and coastal (3), as part of the National Flood Insurance Program (NFIP) regulations and insurance requirements. FEMA does not model flash flood events (2) for their NFIP flood mapping.

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Projected Climate Data

	Baseline	Moderate Emissions (RCP 4.5)[1] Change from Baseline			High Emissions (RCP 8.5)[1] Change from Baseline		
Year	**1981-2010**	**2030**	**2060**	**2090**	**2030**	**2060**	**2090**
Days Above 95°F (Days)[2]	<= 4 days	+5 to +10	+11 to +20	+11 to +20	+5 to +10	+21 to +30	+51 to +60
Cooling Degree Days (Degree Days)[3]	800 to 1200	+200 to +400	+400 to +600	+600 to +800	+200 to +400	+800 to +1000	+1400 to +1600
Max Temp. July (°F)[4]	86°F to 90°F	+2°F to +3°F	+4°F to +5°F	+5°F to +6°F	+2°F to +3°F	+6°F to +8°F	+8°F to +10°F

[1] Representative Concentration Pathway (RCP) is a greenhouse gas concentration trajectory adopted by the IPCC, which describes different climate futures, all of which are considered possible depending on how much greenhouse gases are emitted in the years to come. Emissions in RCP 4.5 peak around 2040, then decline. In RCP 8.5, emissions continue to rise throughout the 21st century.

[2] The total number of days per year with maximum temperature above 95°F is an indicator of how often very hot conditions occur. Depending upon humidity, wind, and access to air-conditioning, humans may feel very uncomfortable or experience heat stress or other heat-related illness on very hot days. Hot days also stress plants and animals as well as infrastructure. Increased demand for cooling can stress energy infrastructure. A baseline is compiled from a long-term average of observations for a particular variable. In this case the baseline for the number of days per year in NJ with maximum temperature above 95°F was created over a 30-year period from 1981 to 2010.

[3] The number of cooling degree days per year reflects the amount of energy people use to cool buildings during the warm season. For this calcluation a standard base temperature of 65°F is utilized. On a day when the average outdoor temperature is 85°F, reducing the indoor temperature by 20 degrees over 1 day requires 20 degrees of cooling multiplied by 1 day, or 20 cooling degree days. Utility companies use cooling degree days to estimate the annual amount of energy people will use to cool buildings. A baseline is compiled from a long-term average of observations for a particular variable. In this case the baseline for the change in the number of cooling degree days during the warm season in NJ was created over a 30-year period from 1981 to 2010.

[4] The change in maximum July temperature reflects how this temperature will change under moderate and high emission scenarios by 2030, 2060, and 2090. A change in the maximum July temperature, historically the hottest month of the year in NJ, could cause temperatures to exceed thresholds of comfort, increasing the chances of heat related illnesses, energy demand, and deleterious impacts on plants and animals. A baseline is compiled from a long-term average of observations for a particular variable. In this case the baseline for change in maximum July temperature was created over a 30-year period from 1981 to 2010.

Climate data provided by the Northeast Regional Climate Center at Cornell University through their Applied Climate Information System (ACIS, rcc-acis.org). The Localized Constructed Analog downscaling projections were obtained from the Scripps Institution of Oceanography (http://loca.ucsd.edu).

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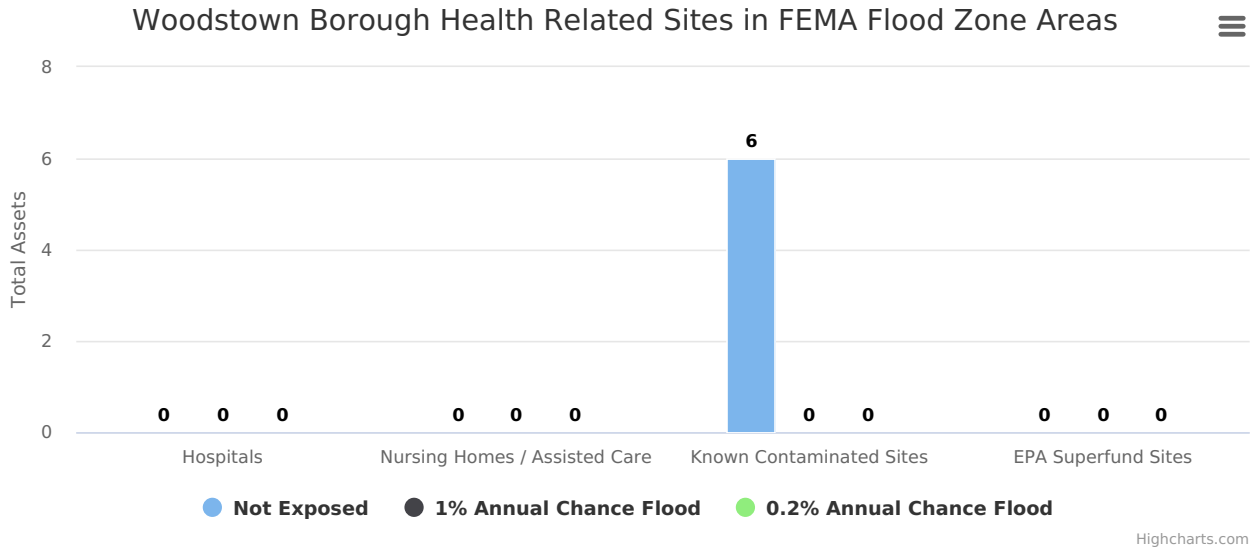
Health Related Sites in FEMA Flood Zone Areas

Assets	Total Assets	# Exposed in ...	
		1% Annual Chance Flood	0.2% Annual Chance Flood
Hospitals	0	0	0
Nursing Homes / Assisted Care	0	0	0
Known Contaminated Sites	6	0	0
EPA Superfund Sites	0	0	0

The FEMA National Flood Hazard Layer (NFHL) dataset represents the current effective flood data across the United States. Areas in the National Flood Hazard Layer are:

- Floodway: The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height.
- 1% Annual Chance Flood: The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is that water-surface elevation of the 1% annual chance flood.
- 0.2% Annual Chance Flood: The 0.2% annual flood (500-year flood) is the flood that has a 0.2% chance of being equaled or exceeded in any given year.
- Areas of Undetermined Flood Hazard are areas with possible but undetermined flood hazards.
- FEMA Flood Zone exposure analyses are inclusive of lesser FEMA flood designations. The number exposed to 1% Annual Chance Flood includes those exposed in the Regulatory Floodway area in its analysis and the 0.2% Annual Chance Flood includes those exposed in the 1% Annual Change Flood and in the Regulatory Floodway.

LINK TO PUBLIC HEALTH LIVE MAP



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Vulnerable Population Report

While all people living in the United States are affected by climate change, some communities and some populations are more vulnerable to changing climate conditions and related health impacts than others. Extensive research here in the United States and across the world points to populations of concern including those that are low-income, communities of color, immigrant populations, people with limited English proficiency, Indigenous people, older and younger adults, people with disabilities and compromised health and mental health conditions, and others.

LINK TO VULNERABLE POPULATION REPORT

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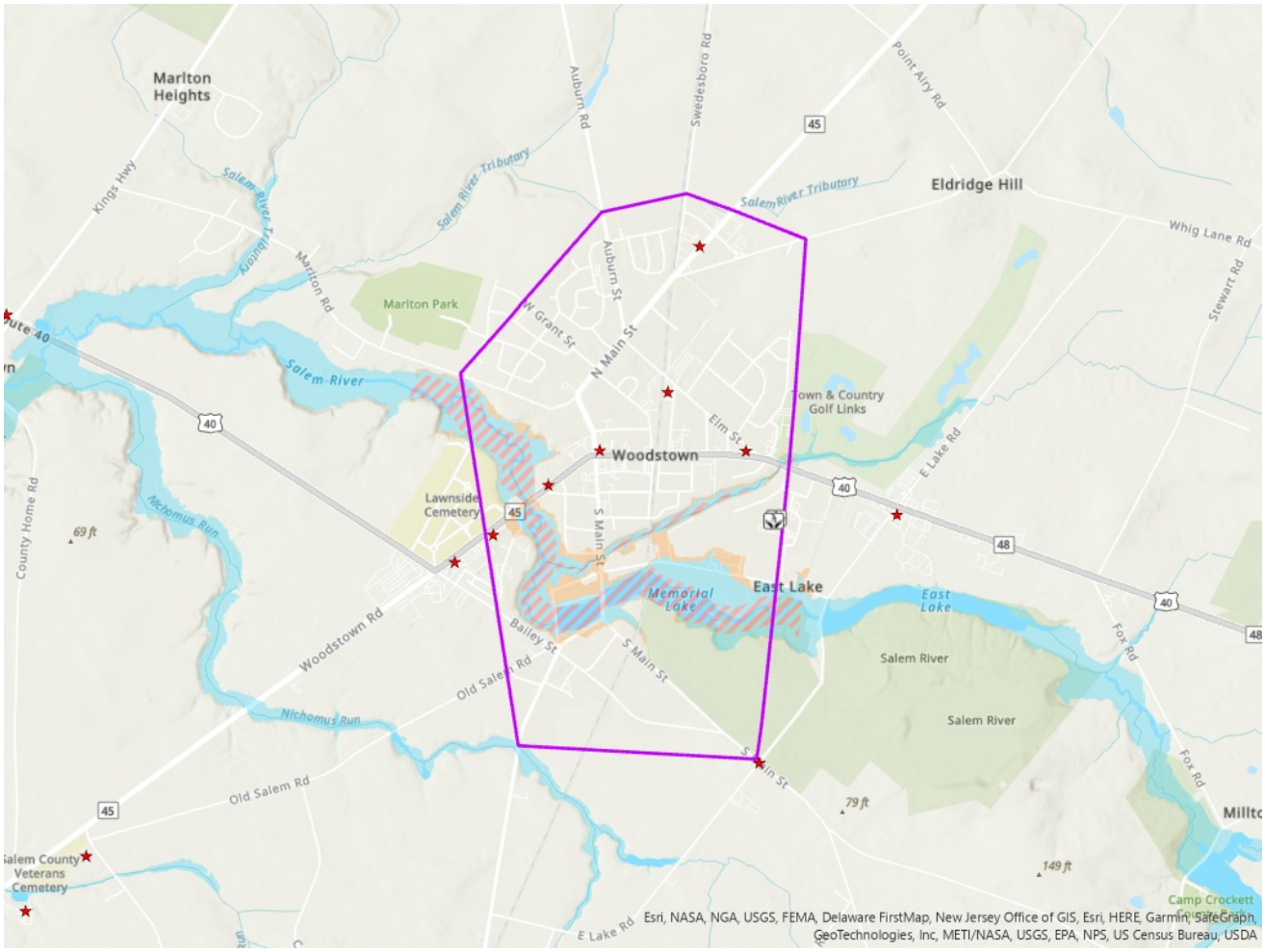
Maps

FEMA Flood Zones

LINK TO HEALTH RELATED SITES LIVE MAP



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Legend

NJ Political Boundaries

Municipal Boundary

Hospitals

Nursing Homes

Known Contaminated Sites

Cleanups - Sites

Map Symbol Code

Incidents of National Significance
Federal Facility Docket/Superfund NPL/RCRA CA
Federal Facility Docket/Brownfields/RCRA CA
RCRA Corrective Action/Superfund NPL
Federal Facility Docket/Superfund NPL
Federal Facility Docket/RCRA CA
Brownfields Properties/RCRA CA
Federal Facility Docket
Brownfields Properties
RCRA Corrective Action
Superfund NPL Sites
Responses

FEMA Flood Zones

Flood Hazard Areas

1% Annual Chance Flood Hazard
Regulatory Floodway
Area of Undetermined Flood Hazard
0.2% Annual Chance Flood Hazard

Metadata / Sources - Flood Hazards

		Where to Get It	
Name	**Description**	**Map Service**	**Authoritative Source**
FEMA Flood Zones	This FIRM data service allows users to view FIRMs for NJ. Counties were combined using the data downloaded from FEMA's Region II office.	FEMA Flood Zones Map Service	Federal Emergency Management Agency(FEMA)

Metadata / Sources - Health Related Sites

		Where to Get It	
Name	**Description**	**Map Service**	**Authoritative Source**
Hospitals	This feature class/shape file contains locations of Hospitals for 50 US states, Washington D.C., US territories of Puerto Rico, Guam, American Samoa, Northern Mariana Islands, Palau, and Virgin Islands. The dataset only includes hospital facilities based on data acquired from various state departments or federal sources which has been referenced in the SOURCE field. Hospital facilities which do not occur in these sources will be not present in the database. The database does not contain nursing homes or health centers. Hospitals have been categorized into children, chronic disease, critical access, general acute care, long term care, military, psychiatric, rehabilitation, special, and women based on the range of the available values from the various sources after removing similarities.	Hospitals Map Service	Office of Homeland Security - Homeland Infrastructure Foundation-Level Data (HIFLD) Working Group
Nursing Home/Assisted Care Facilities	The Nursing Home / Assisted Care feature class/shape file contains facilities that house elderly adults. This feature class's/shape file's attribution contains physical and demographic information for facilities in the continental United States and some of its territories. The purpose of this feature class/shape file is to provide accurate locations for high concentrations of elderly adults in the event of a disaster. The attribution within this feature class/shape file was populated via open source methodologies of authoritative sources. During the update cycle for this deliverable, there were 6010 records added.	Nursing Home/Assisted Care Facilities Map Service	Office of Homeland Security - Homeland Infrastructure Foundation-Level Data (HIFLD) Working Group

Metadata / Sources - Environmental Hazards

		Where to Get It	
Name	**Description**	**Map Service**	**Authoritative Source**
Known Contaminated Sites List	This dataset is updated daily. The Known Contaminated Sites List (KCSNJ) for New Jersey are those sites and properties within the state where contamination of soil or ground water has been confirmed at levels equal to or greater than applicable standards. This list of Known Contaminated Sites may include sites where remediation is either currently under way, required but not yet initiated or has been completed.	Known Contaminated Sites List Map Service	New Jersey Office of Strategy Management - NJEMS
EPA Cleanup Sites	Accidents, spills, leaks, and past improper disposal and handling of hazardous materials and wastes have resulted in tens of thousands of sites across our country that have contaminated our land, water (groundwater and surface water), and air (indoor and outdoor). EPA and its state and territorial partners have developed a variety of cleanup programs to assess and, where necessary, clean up these contaminated sites. CIMC (www.epa.gov/cimc) brings together the data from many of these cleanup programs and lets people map, list and access cleanup progress profiles for sites across the US so that people can know what is going on in their communities.	EPA Cleanup Sites Map Service	United States Environmental Protection Agency