ClimateCheck®

Have a question?
info@climatecheck.com

LOCATION

1761 Russell Chapel Church Rd
Pittsboro, NC
27312

RISK RATINGS

1-93 /100

REDUCE YOUR RISK

★ Tips Inside

REPORT CONTENTS

Supplemental Data

Landslides: there is **no recorded landslide** within about 30km of this property.

Selected Parcel

Address
1761 Russell Chapel Church Rd, Pittsboro, NC, 27312

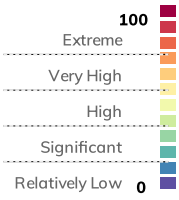
APN
0066619

Coordinates
-79.188943°, 35.766015°

Boundaries

Rating Information

Our ratings reflect hazard risk at a property relative to the rest of our data coverage area. Ratings are based on historical risk and projected 2050 risk. A rating of 1 represents the least risk (but not necessarily none).



1761 Russell Chapel Church Rd
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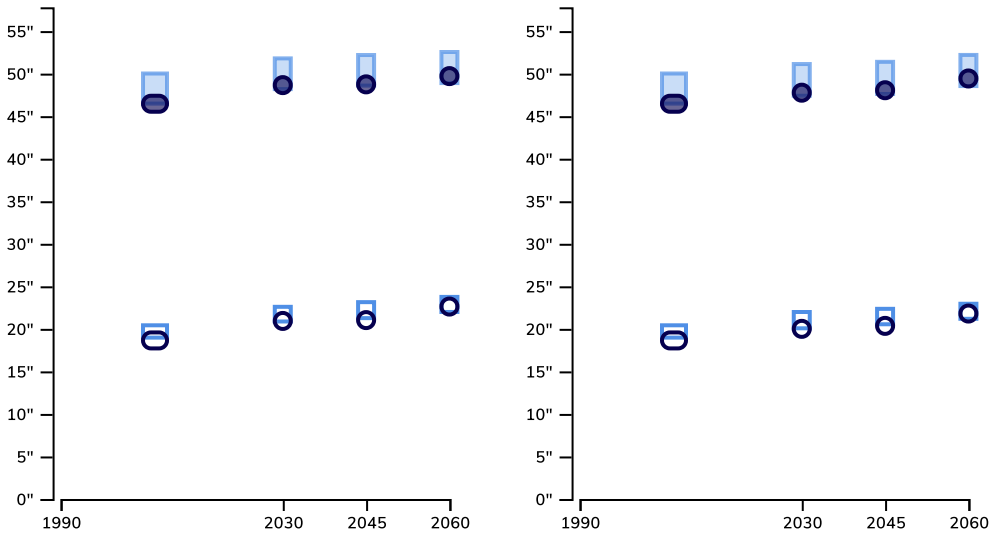
Projected Extreme Precipitation Risk

Risk Rating: 93/100. Based on historical risk exposure and climate change through 2050, this property has **extreme** risk from extreme precipitation. This risk rating is based on the typical rainfall in a location, and the amount of precipitation projected to occur during the most extreme 48-hour periods.

Around 1990, this location exceeded **0.9" (23 mm)** of rain in about **12** 48-hour storms per year, with an average of about **1.6" (40 mm)** per storm. In 2050, this will happen about **14** times per year, averaging about **1.6" (39 mm)** per storm. Total annual precipitation is projected to change from the historical average of **46" (1180 mm)** to **50" (1259 mm)** in 2050.

SCENARIO*	RCP8.5				RCP4.5			
	1990	2030	2045	2060	1990	2030	2045	2060
Annual Rainfall (This Location)	46 "	49	49	50	46 "	48	48	49
Extreme Rainfall† (This Location)	19	21	21	23	19	20	20	22
Annual Rainfall (This Region)	50-50	50-50	50-50	50-50	50-50	50-50	50-50	50-50
Extreme Rainfall† (This Region‡)	20-20	20-20	20-20	20-20	20-20	20-20	20-20	20-20



* See emissions scenario data in Supplemental Data section.
† average annual rainfall in all events that exceed this location's threshold in a 48-hour period.
‡ 25th-75th percentile for region including Georgia, North Carolina, South Carolina.

Reduce your risks from precipitation

Easy maintenance can help keep your property safe during heavy rainfall.

Waterproofing

• Roof: make sure your roof and chimney are in good condition. Seal any gaps to prevent rainwater from seeping in.

• Check seals around windows and doors to make sure they are intact. Weep holes at bottoms of windows should be clean to prevent water intrusion.

Gutters

• Clean gutters and downspouts on a regular basis. Establish a fixed schedule for seasonal maintenance.

• Ensure downspouts route water away from your property with extensions. Your area may recommend disconnecting downspouts from the sewer to avoid backups during heavy storms.

• Run hose through gutters routinely to check flow.

Site drainage

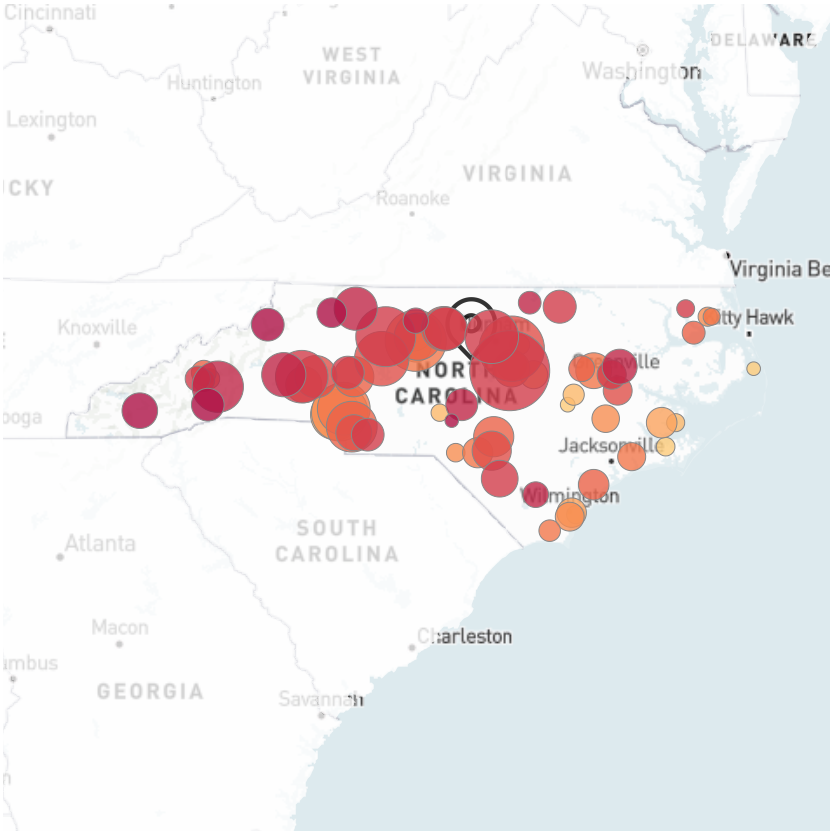
• Check property drainage to ensure proper water flow and prevent your property from being flooded.

• Foundation Drainage: install perforated pipe around your property's perimeter to insure water is diverted away from the foundation.

Flooding: Many of the hazards from extreme precipitation are due to flooding. See flood section for tips for flood-prone areas.

Risk Ratings for Precipitation in North Carolina

The numbers of people with each Precipitation Risk level in North Carolina, and their approximate locations, are shown below. Larger circles represent a greater number of people.



Precipitation Risk Ratings by Population in NC

Risk Level	Population	Total	%
95-99		320k	5%
92-95		760k	11%
88-92		1.7M	25%
84-88		1.1M	16%
81-84		970k	14%
77-81		840k	12%
73-77		540k	8%
69-73		440k	6%
66-69		100k	1%
62-66		54k	1%

Data and Methodology

Climatecheck's extreme precipitation risk rating is based on the amount of precipitation projected to fall during the most extreme storms each year.

We include modeled historical (1980-2005) and projected (through 2065) daily rainfall totals from an ensemble of 32 global CMIP5 climate models that have been downscaled to model North America at a 1/16° resolution. We use the top 2% of daily maximum precipitation from the historical period to define the threshold for each grid cell. We define "extreme precipitation" as rainfall that exceeds this threshold total over a 2-day period. Two quantities determine the risk rating: the number of times in 2050 that this rainfall threshold is exceeded in a 2-day period, and the amount of rain falling within these events. The sums of these quantites are projected onto a 1-100 scale using the cumulative distribution function of the sums across all grid cells within the conterminous U.S. and Canada (omitting Nunavut, Northwest Territories, and Yukon from this distribution) to determine the final risk rating. Ratings are based on the RCP8.5 scenario.

Data Source: LOCA Statistically Downscaled CMIP5 Projections for North America

Extreme Heat Risk

Risk Rating: 83/100. Compared to the contiguous U.S. and Canada, this property has **extreme** risk from extreme heat due to climate change.

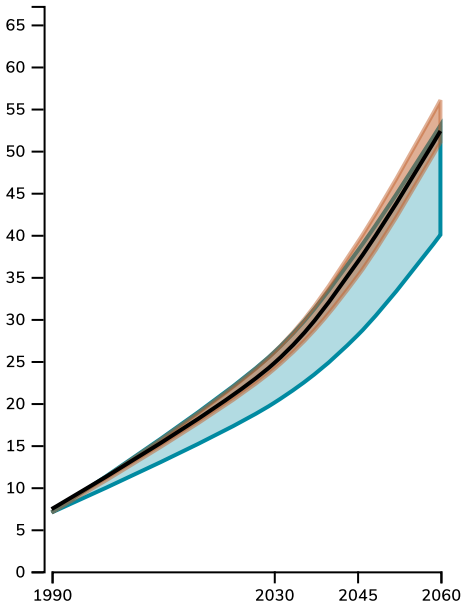
In this location, historically, an average of about **7** days per year reached above **95.3°F (35.2°C).**
In 2050,

- about **40** days in an average year will reach above **95.3°F,** and
- about **7** days per year will reach above **100.92°F (38.3°C).**

Projected Extremely Hot Days Per Year

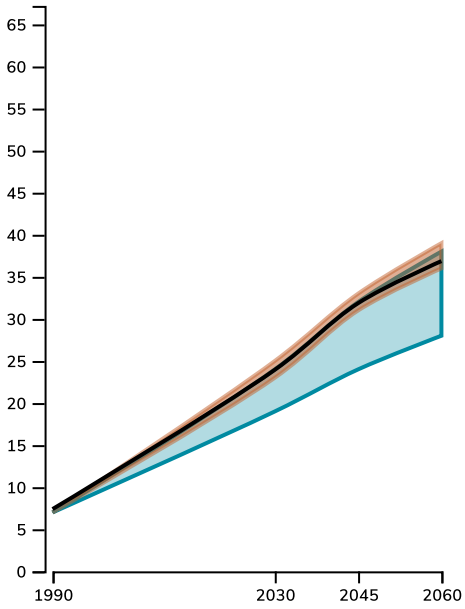
SCENARIO* **RCP8.5**

	Threshold	1990	2030	2045	2060
Property	95.3°F	7	25	37	52
NC**	95.0°F	7	24	37	53
U.S.**	93.3°F	7	24	33	47



RCP4.5

	1990	2030	2045	2060
Property	7	24	32	37
NC**	7	24	32	37
U.S.**	7	22	28	33



* See emissions scenario data in Supplemental Data section.
** Colored area represents 25th-75th percentile estimate for population. Table shows 50th percentile.

Reduce your risks from heat

Reduce your risks from rising temperatures with simple improvements that help keep your property cool on hot days.

Inside Your Property

• Install drapes or shades on every window and door to provide insulation and block the sun.

• Add heat control window film to reflect the sun without blocking your view.

• Install weather-stripping on doors, windows, and the often overlooked window air conditioning units to block any air gaps.

• Do you have adequate insulation between your walls and floors? Adding insulation is expensive, but makes a significant difference in reducing your energy costs.

• Consider upgrading to insulated double-pane windows. Again, an expensive investment.

Inside your Attic

Blown-in loose attic insulation is one of the highest returns on investment of all property improvement projects, thanks to its low material and installation cost.

• Allow heat to escape and reduce your air conditioning costs by installing roof vents and whole-house attic fans.

Outside Your Property

• Create shade by adding trees and awnings. Shade your property along the southern exposure, where most sunlight occurs during the day, for maximum impact. If you have high fire risk, do this carefully.

• Reduce heat absorption from the sun by using light-colored roof and wall colors. Reflective roofing materials are particularly helpful to prevent transferring the sun's heat into your property.

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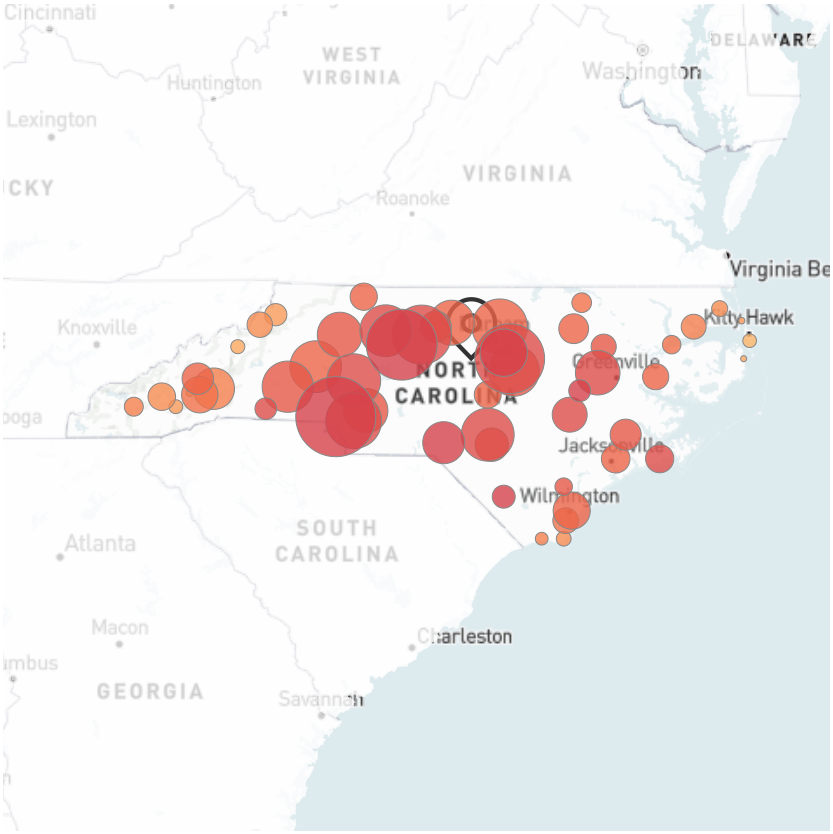
Risk Ratings for Heat in North Carolina

The numbers of people with each Heat Risk level in North Carolina, and their approximate locations, are shown below. Larger circles represent a greater number of people.



Population

5.7k
41k
150k
430k

Risk

- Extreme
- Very High
- High
- Significant
- Relatively Low

Heat Risk Ratings by Population in NC

Risk Level	Population	Total	%
88-90		1.5M	21%
85-88		2.2M	32%
83-85		1.2M	17%
81-83		1.2M	18%
79-81		260k	4%
76-79		250k	4%
74-76		170k	2%
72-74		65k	1%
69-72		21k	0%
67-69		21k	0%

Data and Methodology

ClimateCheck's heat risk rating incorporates:

• the temperature of the hottest days in a location, historically;

• the highest wet bulb temperatures on the most hot and humid days in a location, historically;

• and the projected number and temperatures of these days around 2050.

Wet bulb temperature is a measurement that accounts for both heat and humidity. A wet bulb temperature above about 90°F (32° C) is the limit for humans to perform outdoor activities. In this report, 'temperature' refers to dry bulb temperature unless specified as wet bulb.

We include modeled historical (1980-2005) and projected (through 2065) daily maximum temperatures from an ensemble of 32 global climate models that have been downscaled to model North America at a 1/16° resolution. We use the top 2% of daily maximum dry bulb and wet bulb temperatures from the historical period to define the thresholds for extremely hot days and extremely high wet bulb days. We use the projected period from 2046-2055 to estimate the number of days with maximum dry bulb and wet bulb temperatures exceeding these historical top 2% thresholds. We also estimate the top 2% wet bulb and dry bulb daily temperatures for this projected period. The 2050 estimates for these four quantities ("dry bulb magnitude," "wet bulb magnitude," "dry bulb days," and "wet bulb days") are summed and projected onto a 1-100 scale using the cumulative distribution function of the sums across all grid cells within the conterminous U.S. and Canada (omitting Nunavut, Northwest Territories, and Yukon from this distribution). Ratings are based on the RCP8.5 scenario.

Data Sources:

• LOCA Statistically Downscaled CMIP5 Projections for North America

• Multivariate Adaptive Constructed Analogs (MACA) downscaled Global Climate Models

Tornado and Cyclone-Scale High Wind Risk

Tornado Touchdowns

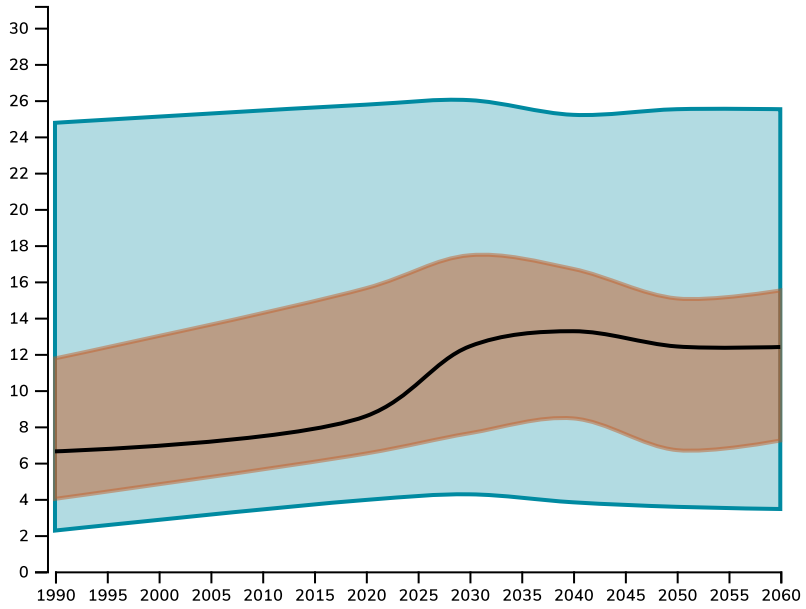
There have been about **1** tornadoes detected within about 14km of this location during the recorded period (1950-2021), with **intensities averaging 0.31 and up to about 1.** Note that tornado touchdowns are more likely to be recorded when near more heavily populated areas.

Cyclone-Scale High Winds

Historically, this location exceeded gale-force winds about **6.6 times every 30 years.** By 2050, this is expected to increase to about **12.4** times. Historically, the top wind speeds in this location were at least 41 mph (19 m/s). In 2050, they are projected to be at least 44 mph (20 m/s).

Projected Number of Gale-Force Winds Per 30 Years

	1990	2020	2030	2040	2050	2060
Property	6.6	8.6	12.4	13.3	12.4	12.4
NC**	7.1	10.4	12.7	12.5	9.5	10.4
U.S.**	9.2	11.2	12.1	11.1	10.9	11.1



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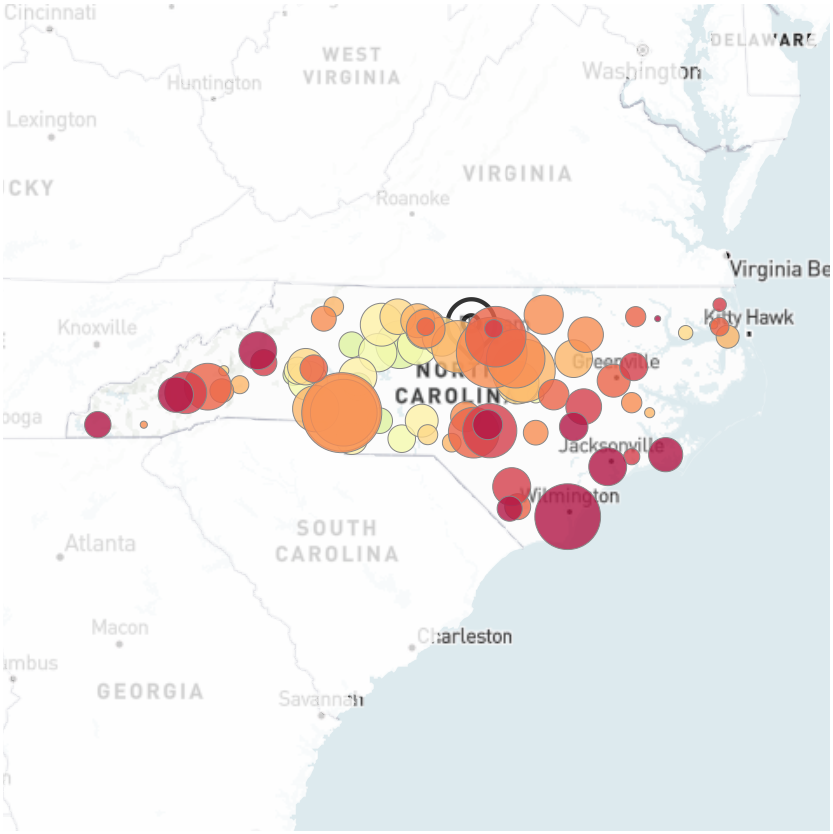
Risk Ratings for Wind in North Carolina

The numbers of people with each Wind Risk level in North Carolina, and their approximate locations, are shown below. Larger circles represent a greater number of people.



Population

4.2k
30k
110k
310k

Risk

- Extreme
- Very High
- High
- Significant
- Relatively Low

Wind Risk Ratings by Population in NC

Risk Level	Population	Total	%
93-100		830k	12%
86-93		630k	9%
79-86		840k	12%
72-79		1.5M	21%
65-72		1.1M	16%
57-65		820k	12%
50-57		560k	8%
43-50		370k	5%
36-43		260k	4%
29-36		50k	1%

Data and Methodology

Data Sources:

• Cyclone-scale wind projections: North American Coordinated Regional Climate Downscaling Experiment (NA-CORDEX)

• Land Surface Data: North American Land Data Assimilation System

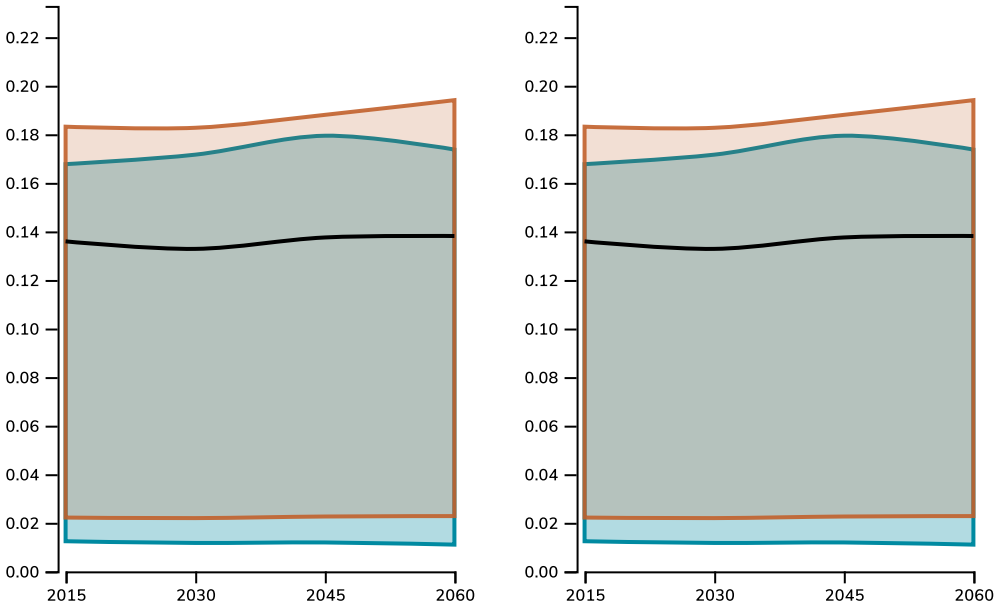
• Tornado observations: National Weather Service Storm Prediction Center

Projected Water Stress

Risk Rating: 42/100. Compared to the contiguous U.S., this property has **high** risk of water stress due to climate change.

In this location, historically, average water stress is about **13.59%.** In 2050, based on projected climate change and water demand, the average water stress is about **14.76%.**

SCENARIO*	RCP8.5				RCP4.5			
	2015	2030	2045	2060	2015	2030	2045	2060
Property	13.6%	13.3%	13.8%	13.8%	13.6%	13.3%	13.8%	13.8%
Region***	9.6%	9.5%	10.0%	10.0%	9.6%	9.5%	10.0%	10.0%
U.S.**	4.9%	4.8%	4.8%	4.9%	4.9%	4.8%	4.8%	4.9%



* See emissions scenario data in Supplemental Data section.
** Colored area represents 25th-75th percentile estimate for population. Table shows 50th percentile.

Reduce your risks from drought

The best way to prepare for drought is to conserve water. Here are the top ways to reduce your water use.

Indoors

• Check plumbing for leaks; have them repaired by a plumber. Even a slowly dripping faucet wastes 3,000 gallons of water per year.

• Choose energy- and water- efficient dishwashers and laundry machines.

Purchase a low-volume toilet to reduce water use by more than half, and install ultra-low-flow showerheads.

Outdoors

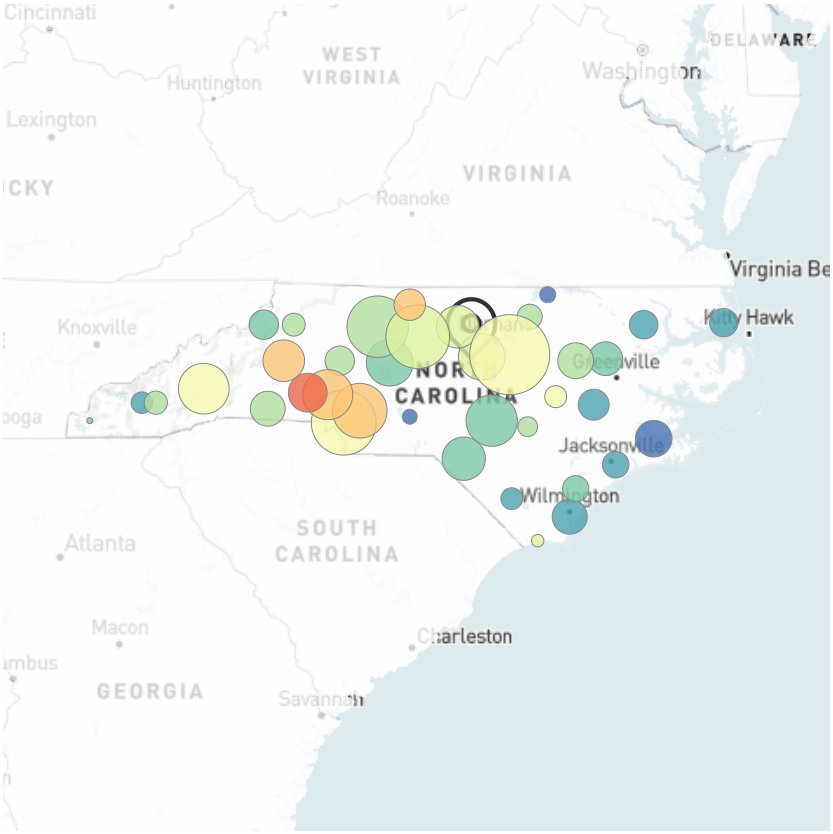
• Replace traditional lawns with drought-tolerant, native landscaping. Most drought-tolerant plants require only about a third of the water needed for a traditional lawn.

• Check sprinklers to make sure they're operating properly and efficiently. Choose water-efficient irrigation, like drip irrigation, for flowers, shrubs, and trees. Or use a weather-based or "smart" irrigation controller.

• Cut grass higher to retain more moisture, and use mulch to retain moisture in soil.

Risk Ratings for Drought in North Carolina

The numbers of people with each Drought Risk level in North Carolina, and their approximate locations, are shown below. Larger circles represent a greater number of people.



Population

7.6k
55k
200k
570k

Risk

- Extreme
- Very High
- High
- Significant
- Relatively Low

Drought Risk Ratings by Population in NC

Risk Level	Population	Total	%
78-86		180k	3%
69-78		0.0	0%
61-69		980k	14%
52-61		0.0	0%
44-52		1.6M	24%
36-44		970k	14%
27-36		1.1M	16%
19-27		1.1M	16%
10-19		650k	9%
2-10		220k	3%

Data and Methodology

Climatecheck's drought risk rating in the U.S. represents the risk a property faces of experiencing significant water stress with climate change. We measure water stress by calculating the average ratio of water demand to water supply within a watershed region. Projections are based on trends in the climate, demographics, and uses such as irrigation and thermoelectric power. Our analysis is based on data using an ensemble of 20 climate models to estimate water supply and demand across the United States. This dataset includes interbasin transfers (places where water sourced from one area is used in another). Water Stress for your property is measured within your local HUC8 watershed. This watershed does not necessarily account for a water provider's strategies to overcome water stress such as through aqueducts and other infrastructure. For further detail, please check with your local water utility to understand the sources of your water supply.

Data Sources:
Duan, Kai & Caldwell, Peter & Sun, Ge & Mcnulty, Steven & Zhang, Yang & Shster, Erik & Liu, Bingjun & Bolstad, Paul. (2019). Understanding the role of regional water connectivity in mitigating climate change impacts on surface water supply stress in the United States. Journal of Hydrology. 570. 10.1016/j.jhydrol.2019.01.011.

Projected Fire Risk

Historically, the 4 days per year with the most dangerous conditions for fire spread had **low** risk. These conditions are projected for about 9 days per year in 2050.

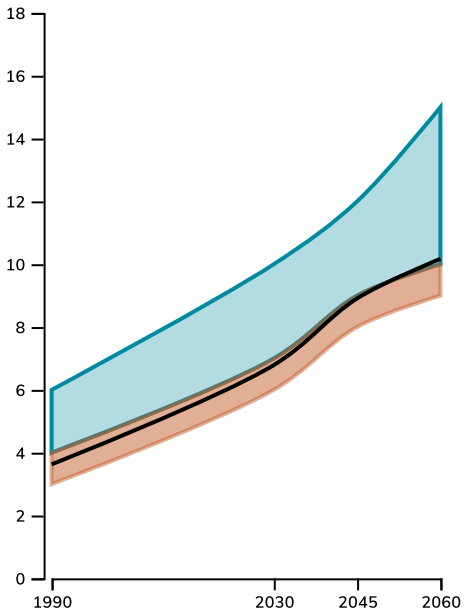
This location has about a **0.1%** chance of burning in a 30-year period, corresponding to about a **0.01%** chance of burning in an individual year.

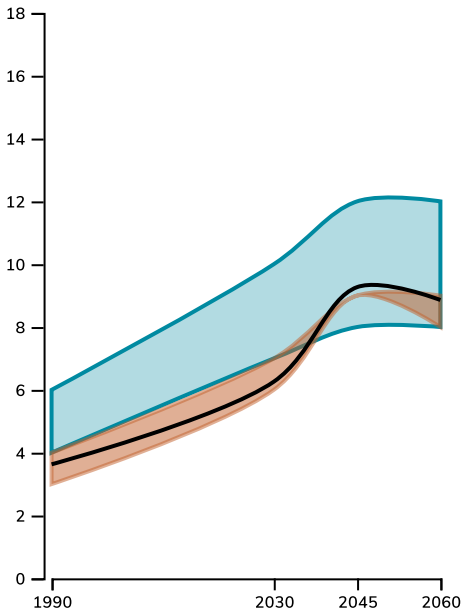
If a fire occurs here, it has:
• About a **64%** chance of **flames over 4 feet.** Fires reaching this height are generally beyond manual control; firefighters may be able to control the fire using equipment.
• About a **2%** chance of **flames over 8 feet.** Fires reaching this height are generally considered high intensity, and control efforts are likely to be ineffective.

Projected Number of Highest Fire Weather Index (FWI) Days Per Year

SCENARIO*	FWI Threshold	RCP8.5 1990	RCP8.5 2030	RCP8.5 2045	RCP8.5 2060
NC**	23	4	7	9	10
U.S.**	23	4	6	8	10
	25	4	8	10	12

SCENARIO*	RCP4.5 1990	RCP4.5 2030	RCP4.5 2045	RCP4.5 2060
NC**	4	6	9	9
U.S.**	4	6	9	8
	4	8	10	10





* See emissions scenario data in Supplemental Data section.
** Colored area represents 25th-75th percentile estimate for population. Table shows 50th percentile.

Reduce your risks from fire

Reduce the risk to your property from wildfire and prepare yourself for the possibility of damage.

First steps

• Make sure you're properly insured.

• Create a plan. What will you do if you have to evacuate? Who can your family contact during an evacuation to coordinate and make sure everyone is safe?

• Create a fire-resistant zone by removing leaves, yard debris, and any flammable material within 30 feet around your property.

• Identify an outdoor water source and be prepared with a hose that can reach any area of your property.

• Keep important items in a fireproof place. Securely store digital copies of important documents outside your property.

Smoke

• To keep yourself safe from particulate matter in smoky air during wildfires, have N95 masks ready and pay attention to air quality.

• Buy a HEPA filter to purify the air in your property. Upgrade the filters in existing HVAC systems to trap particulate matter. Identify a room that can be closed from outside air during extreme situations.

Community

• Know your community's evacuation plan. Find and practice multiple ways to leave the area.

• Reach out to neighbors, family and friends using text messages or social media in an emergency.

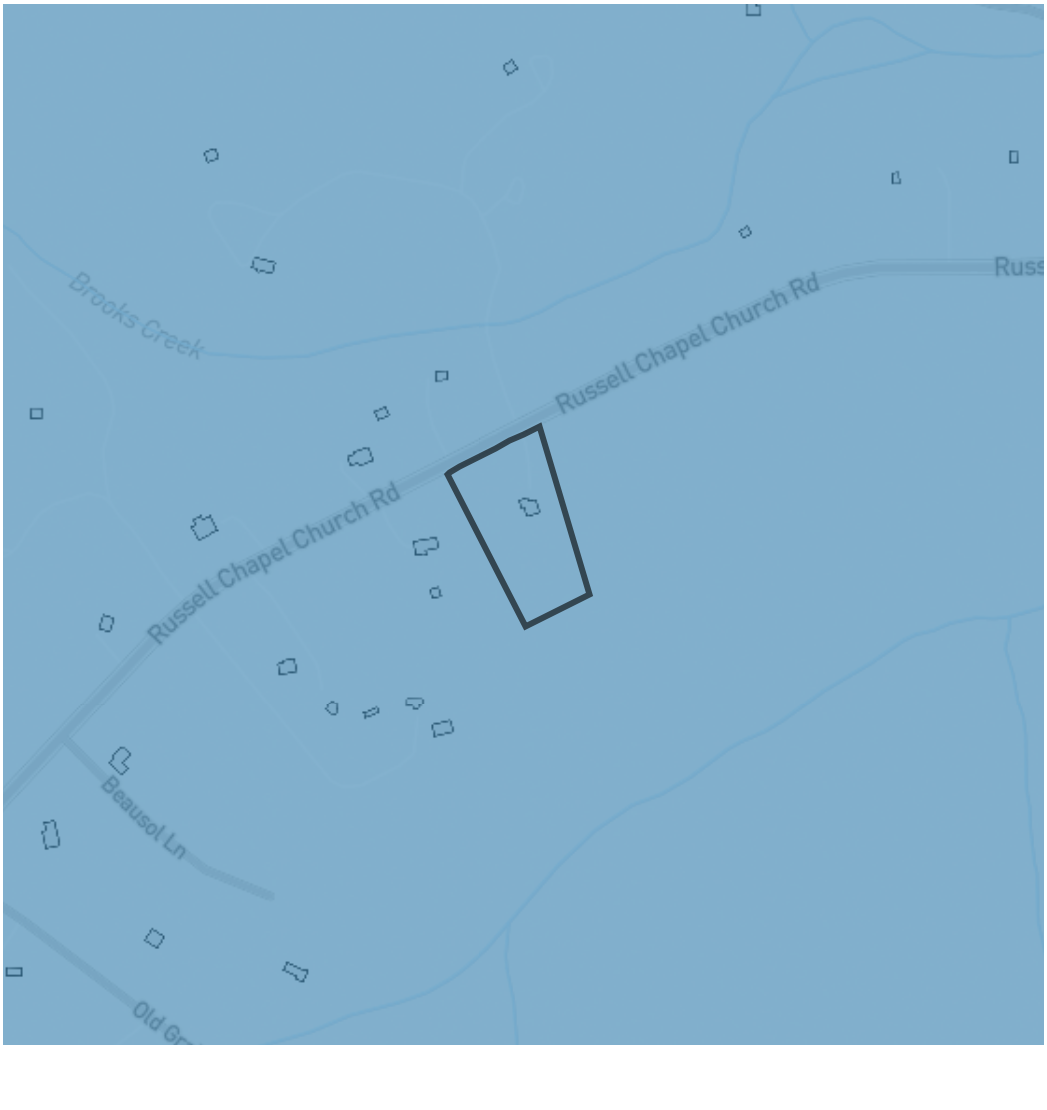
• Work with local leaders to help your community coexist with the risk of fire.

17

Fire
Relatively Low Risk

Fire Risk Ratings Within About 500 meters

The Fire Risk within about **0.3 miles (500 m)** of this location ranges from **15** to **18.**



17

Fire
Relatively Low Risk

Fire Risk Ratings Within About 1 km

The Fire Risk within about **0.6 miles (1000 m)** of this location ranges from **7** to **20.**

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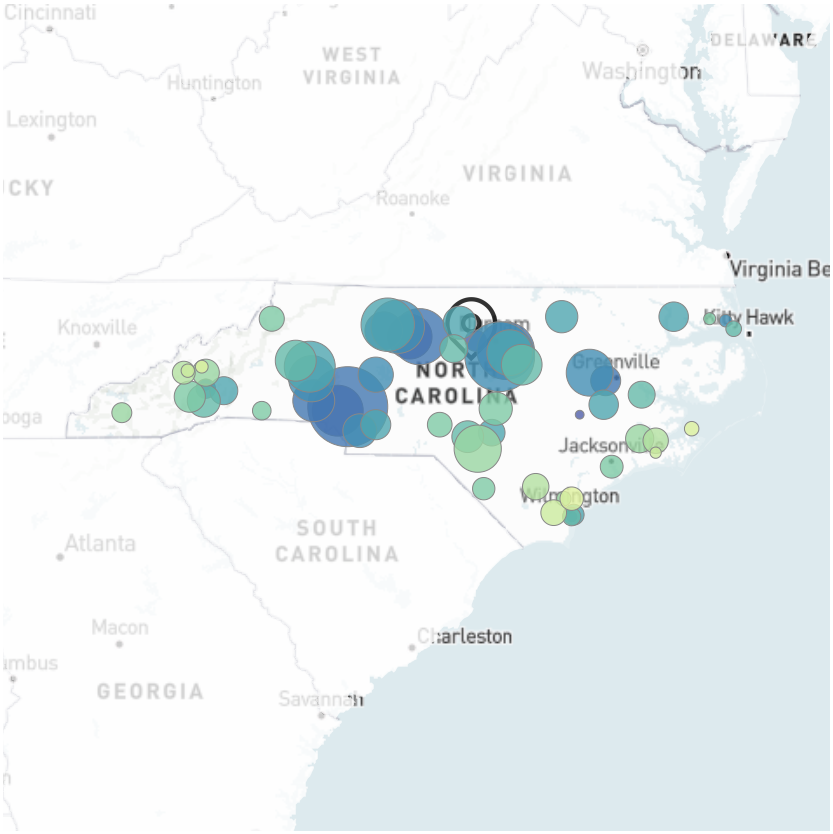
Risk Ratings for Fire in North Carolina

The numbers of people with each Fire Risk level in North Carolina, and their approximate locations, are shown below. Larger circles represent a greater number of people.



Population

6.1k
44k
160k
460k

Risk

- Extreme
- Very High
- High
- Significant
- Relatively Low

Fire Risk Ratings by Population in NC

Risk Level	Population	Total	%
38-42		87k	1%
34-38		92k	1%
30-34		180k	3%
26-30		420k	6%
22-26		460k	7%
17-22		720k	10%
13-17		1.4M	20%
9-13		1.4M	21%
5-9		1.6M	24%
1-5		490k	7%

Data and Methodology

Climatecheck's fire risk rating is based on the probability of burning, the severity of a fire if it were to occur in a given location, and the historical and future (circa 2050) risk of high fire weather index days. We use climate model projections of temperature, precipitation, relative humidity, and wind speed to estimate the Fire Weather Index (FWI), a widely-accepted wildfire danger rating system metric. FWI is a daily measure of fire danger with 1/24° (approximately 4km) spatial resolution that accounts for the effects of fuel moisture and wind on fire behavior and spread. We define a threshold for each grid cell based on the 98th percentile of daily FWI values over the historical period (1981-2005), and a national threshold based on the 98th percentile of average daily FWI across all of CONUS. We use a weighted threshold (90% cell, 10% national) to count daily exceedances historically and in the future.

We integrate this FWI danger with 30m-resolution 2020 US Forest Service (USFS) wildfire risk datasets that represent wildfire likelihood and severity based on extensive fire behavior modeling. These datasets are based on conditions in 2020. The final risk rating is weighted evenly by: cell FWI threshold, daily FWI exceedances of the blended threshold circa 2050, burn probability, and conditional flame height.

Data Sources:

• U.S. Forest Service Research Data Archive. Wildfire Risk to Communities: Spatial datasets of landscape-wide wildfire risk components for the United States

• 20 CMIP5 Global Climate Models downscaled with Multivariate Adaptive Constructed Analogs (MACA)

Projected Flood Risk

COVERAGE: This assessment is based on the **highest potential flooding risk** within this property's parcel boundary. See maps for details.

RISK PROJECTIONS:

- **Fluvial and Pluvial Flooding**

Our models project that this property has a very low risk of surface and riverine flooding.

- **FEMA Analysis**

FEMA has not mapped this area.

* See emissions scenario data in Supplemental Data section.

Reduce your risks from flood

There are many ways to help protect your property from flooding, ranging from easy and affordable to involved and expensive. Invest smartly.

First steps

• Make sure you're properly insured.

Smart Tip: Don't wait until rain or snowmelt hits to buy flood insurance—most policies go into effect 30 days after purchase.

• Sign up for your community's emergency alert system.

Less Costly Upgrades

• Clear gutters to prevent water from pooling around a building's foundation.

• Apply coatings and sealants to foundation, walls, windows, and doorways to prevent water leaking in.

• Use nonporous flooring for the first floor to reduce damage in a flood.

• Buy sandbags to divert moving water around buildings. Buy doorway flood barriers.

• Purchase rain barrels; connect them to gutter downspouts to collect runoff and reduce flash flood risks.

• Install foundation vents: allow water to flow through a building instead of pooling and applying pressure to walls and windows.

More Expensive Upgrades

• Install a sump pump to remove water accumulating in your property.

• Raise electrical outlets to at least one foot above expected flood levels. Raise HVAC systems, oil tanks, plumbing, and electric meters to above flood levels.

• Elevate your property on stilts or concrete blocks, or even relocate your property to higher ground.

Community Preparation

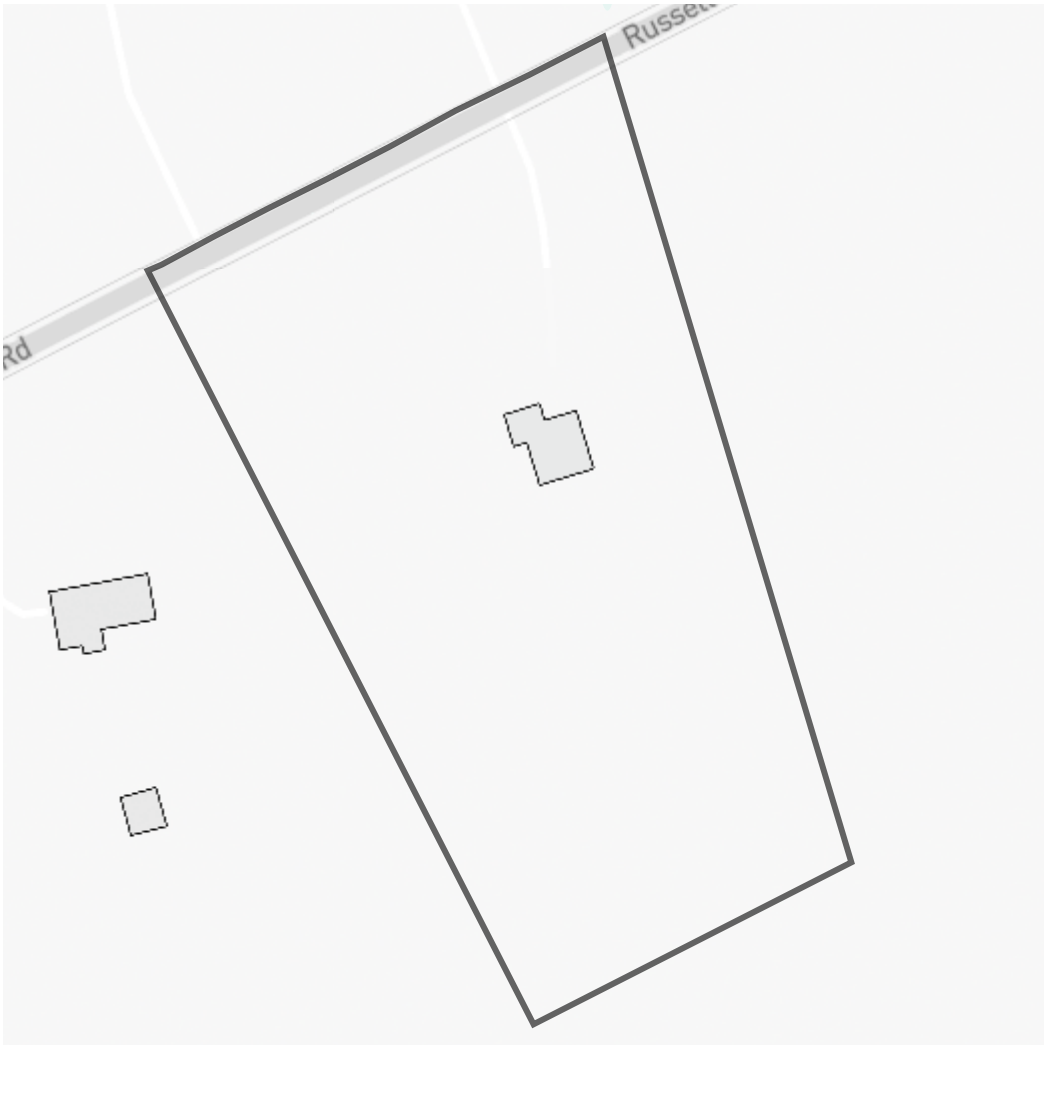
• Many of the most important flood protection efforts can be made at the community level. Contact local officials about community adaptation efforts.

• Advocate for community-wide flood risk management, like restoring and protecting ecosystems & green space to improve water retention.

1

Flood
Relatively Low Risk

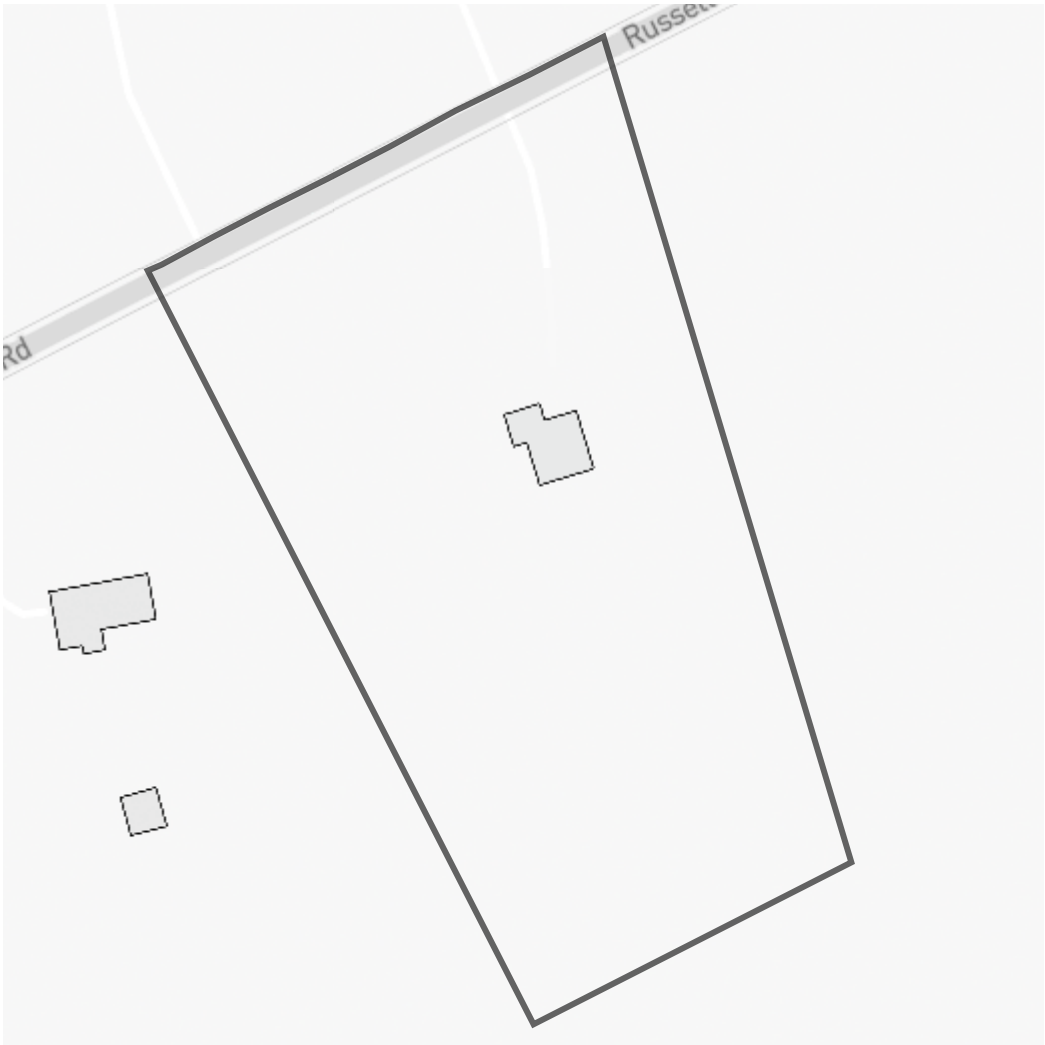
Pluvial and Fluvial Flooding Risk Within About 100 meters



1

Flood
Relatively Low Risk

FEMA Risk Within About 100 meters

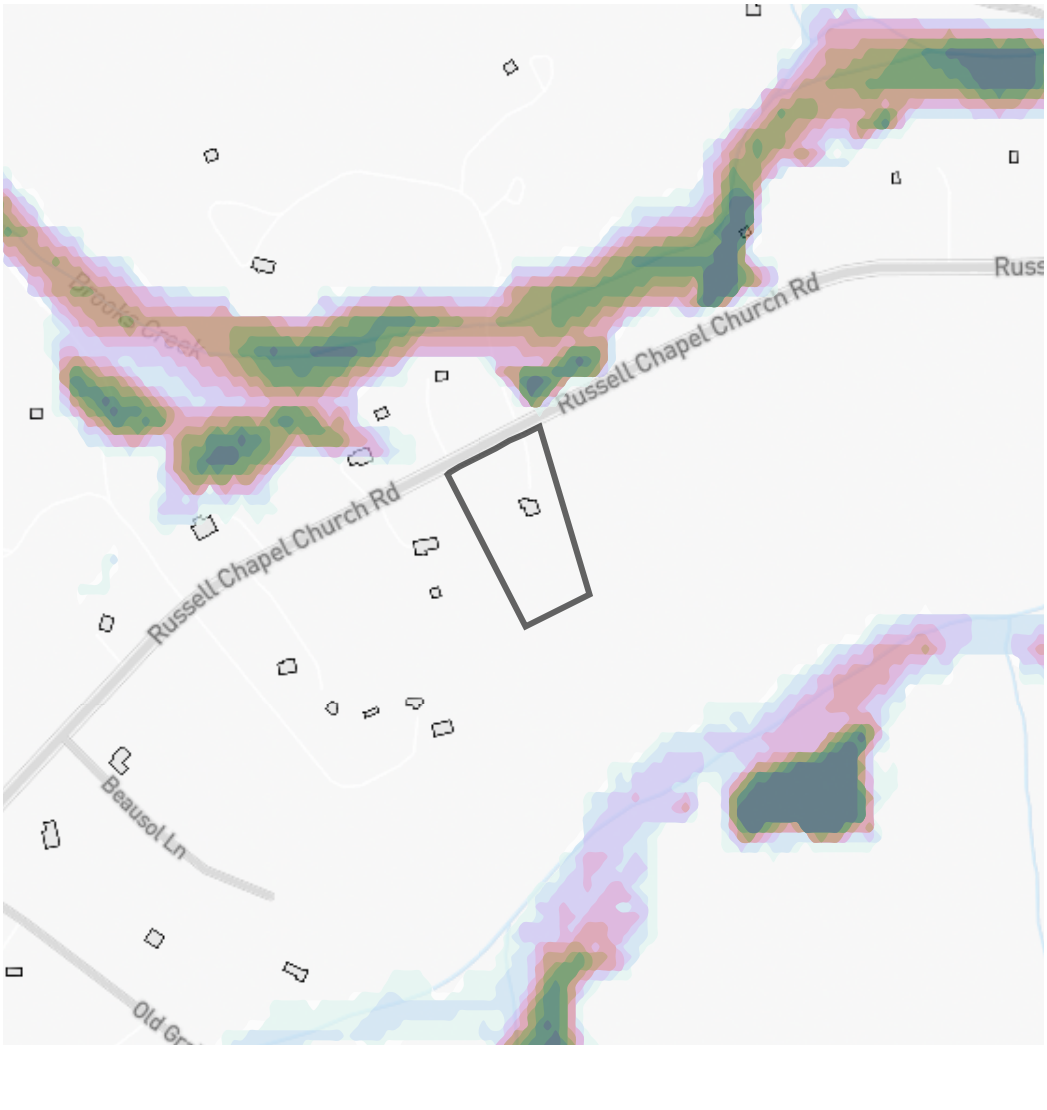


FEMA zone 1 percent flood zone

1

Flood
Relatively Low Risk

Pluvial and Fluvial Flooding Risk Within About 500 meters



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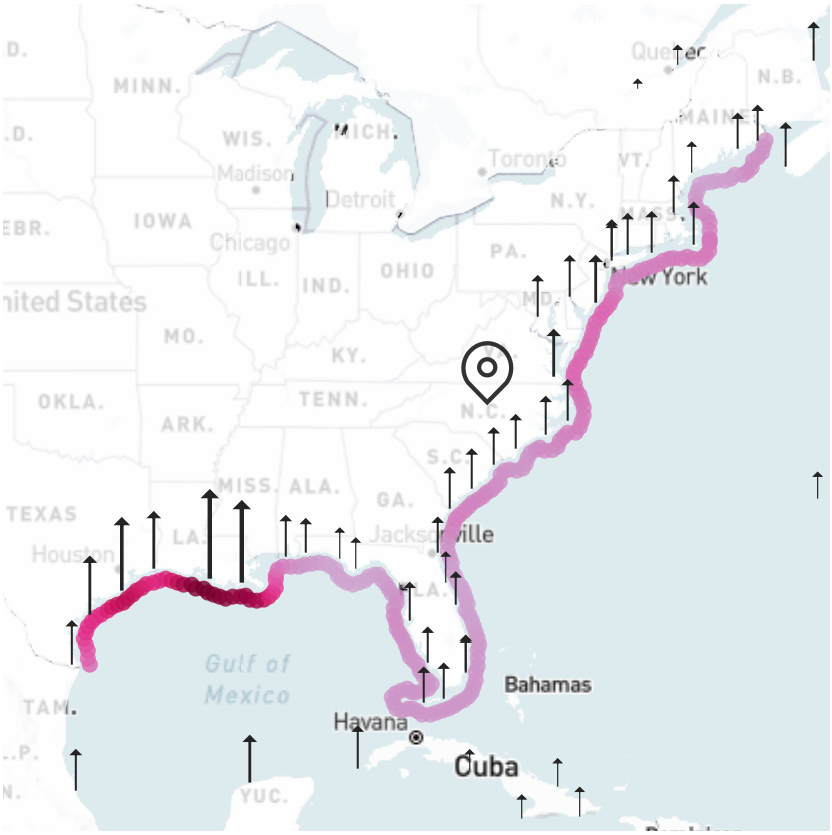
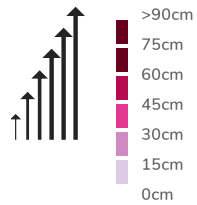
Flood
Relatively Low Risk

FEMA Risk Within About 500 meters

FEMA zone 1 percent flood zone

Sea Level Rise Along the Atlantic Coast





Data and Methodology

Our flood risk assessment includes several causes of flooding: coastal (storm surge and sea level rise), fluvial (flooding from bodies of water overflowing, e.g. riverine), and pluvial (surface water flooding). We combine risk analyses for each of these causes to measure your probability of a significant flood between 2020 and 2050, and how deep a flood is likely to be.

High-Tide Coastal Flooding and Sea Level Rise

High-tide coastal flooding occurs when water inundates land during the highest tides. As the planet warms, sea levels are rising: warmer water takes up more space than cooler water, and melting glaciers and ice sheets contribute to ocean volume. The mean sea level is rising across the globe, but the amount of sea level rise varies locally. We use observed tidal gauge data and coastal flooding models from NOAA to quantify the typical range of high tide heights for a location and the associated inundation. We then use NOAA forecasts of local sea level rise through 2050 to augment these tide heights and estimate how much land will be inundated in the future.

Storm Surge

A storm surge is a rise in ocean water, higher than any normal tide, generated by a storm. Storm surges happen when a hurricane's winds push water toward the shore. The depth of the resulting flood depends on the strength of the storm and its direction, as well the shape of the coastline and local terrain. We use models from NOAA and NHC that estimate the worst-case scenario flood depth at a 10-meter resolution along the Atlantic and Gulf coasts for each category of hurricane. To quantify the likelihood of these floods, we analyze observed hurricane tracks between 1900-2000 to measure how often category 1-5 storms pass within about 50 miles of a location.

Pluvial and Fluvial Flooding

These types of flooding can occur away from the coast. Fluvial, or riverine, flooding happens when a river, lake, or stream overflows onto the surrounding land. Pluvial flooding includes flash floods and surface water, and occurs when extreme rainfall creates a flood away from a body of water. We use two-dimensional flooding models with nationwide digital elevation maps to derive the probability and depth of these types of floods now and in the future with climate change.

Data Sources:
NOAA sea level rise inundation maps: https://coast.noaa.gov/slrdata/
Sea level rise data: Sweet, W.V., R.E. Kopp, C. P. Weaver, J. Obeysekera, R. M. Horton, E.R. Thieler and C. Zervas (2017), Global and Regional Sea Level Rise Scenarios for the United States. NOAA Tech. Rep. NOS CO-OPS 83. *Assumption: "intermediate" scenario*
USGS Digital Elevation Models

FEMA National Risk Index

About this Assessment The FEMA National Risk Index (NRI) provides risk designations for 18 hazards for census tracts in the United States. This information is not provided for all 18 hazards in each tract. **Hazards omitted from the NRI may still pose a significant risk.** See the location-specific analysis in this report for more information, including projected risk with climate change. Annual Events are an estimate of how many times a year the hazard occurs.

Risk	Annual Events
Relatively High	
Winter Weather	1.548
Relatively Moderate	
Hail	4.72
Heat Wave	0.557
Ice Storm	1.802
Lightning	52.86
Tornado	0.007
Relatively Low	
Drought	17.182
Hurricane	0.134
Landslide	0.01
Riverine Flooding	1.125
Strong Wind	1.172
Wildfire	0
Very Low	
Earthquake	0
No Rating	
Cold Wave	0
Not Applicable	
Avalanche	
Coastal Flooding	
Tsunami	
Volcanic Activity	

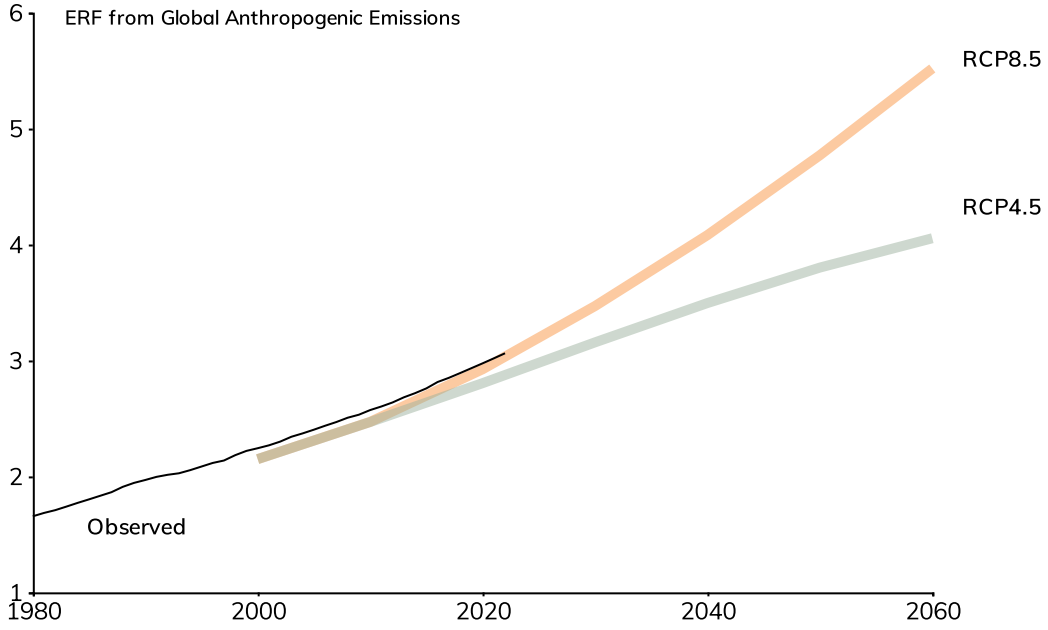
Emissions Scenarios

Representative Concentration Pathways

Climate models use information about the concentrations of greenhouse gases in Earth's atmosphere over time. Representative Concentration Pathways (RCPs) describe different emissions scenarios used in climate models within CMIP5. The descriptions and ratings in this report are based on the RCP8.5 scenario through 2050. Where available, we also provide data for RCP4.5.

The data below reflect effective radiative forcing (ERF) from CO2, N20, CH4, and HFCs for two modeled scenarios and for observed worldwide emissions.

Emissions Data Sources: Modeled: IPCC, 2013: Annex II: Climate System Scenario Tables. Observed: NOAA Annual Greenhouse Gas Index (through 2022).



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