ClimateCheck™

Have a question?
info@climatecheck.com

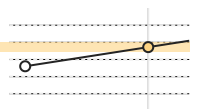
PROPERTY ADDRESS

11344 Coloma Rd
Rancho Cordova, CA
95670

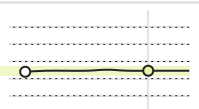
OVERALL RISK

Moderate risk of hazard due to climate change.

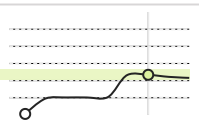
★ **Flood**
High risk



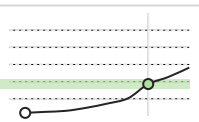
★ **Fire**
Moderate risk



★ **Storm**
Moderate risk



Heat
Low risk

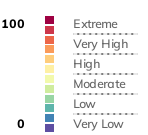


Drought
Low risk

★ **Reduce your risk:** tips inside

ABOUT YOUR RISK

Your overall risk is an average of future impacts of storms, heat, fires, floods, and drought.



Projected Flood Risk, 2020-2050

This property has a relatively **high** risk of flooding through 2050.

Fluvial and Pluvial Flooding

This property has about a **30%** chance of a significant pluvial or fluvial flood **over 2 feet** deep before 2050. See map for details.

FEMA Analysis

Zone X: minimal

Area of minimal risk. See map for details.

* This risk rating is based on the highest potential flooding risk within your property's parcel boundary. See maps below for details.

Reduce your risks from flood

There are many ways to help protect your home 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 home instead of pooling and applying pressure to walls and windows.

More Expensive Upgrades

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

• 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.

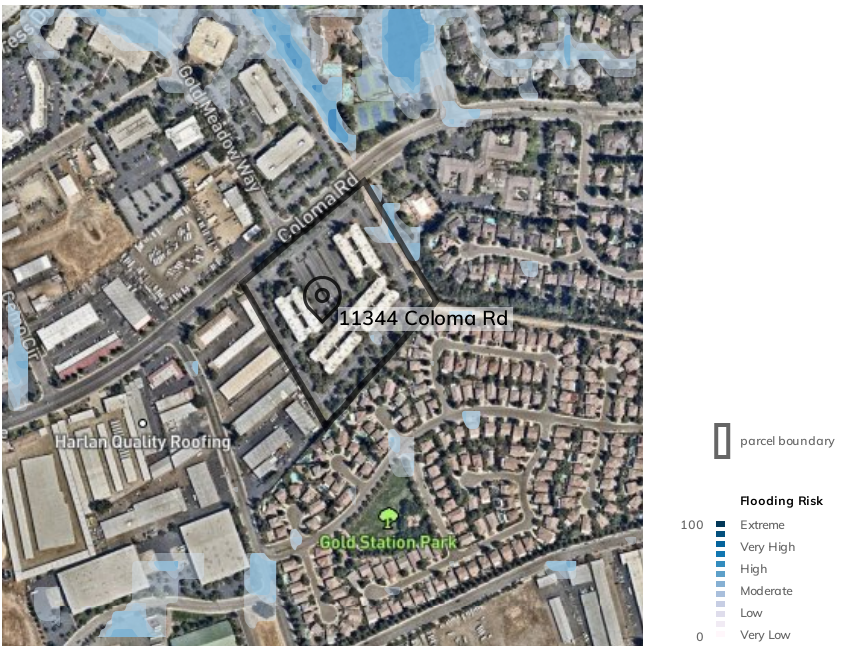
• Elevate your home on stilts or concrete blocks, or even relocate your home to higher ground.

Community Preparation

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

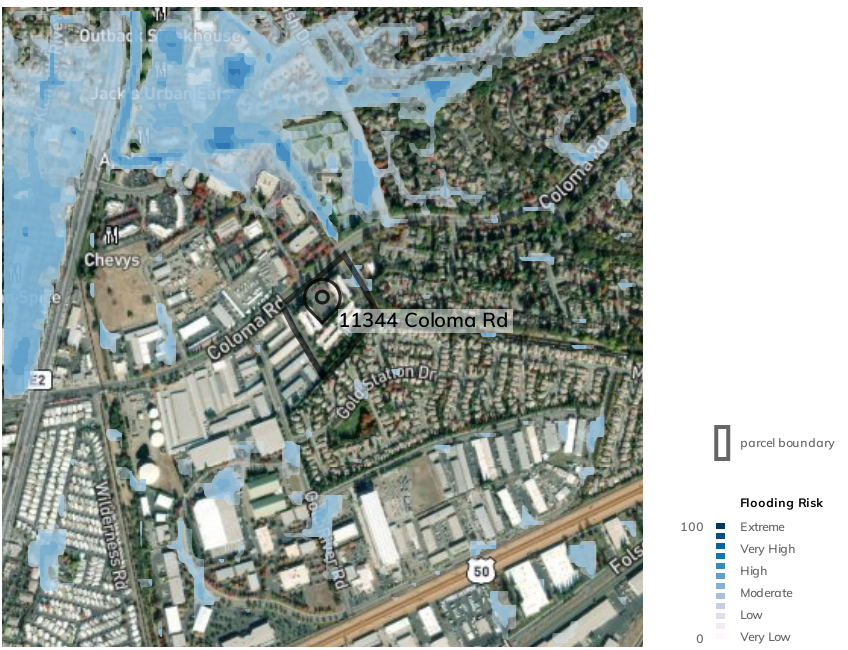
• Advocate for community-wide flood risk management, like restoring and protecting ecosystems & green space to improve water retention.

Pluvial and Fluvial Flooding Risk Within 500m



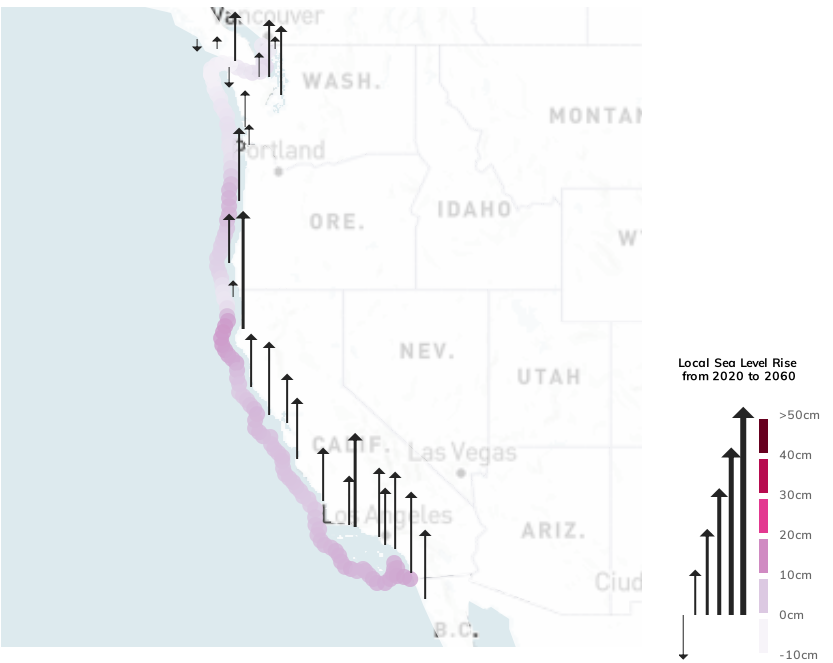
FEMA Risk Within 500m

Pluvial and Fluvial Flooding Risk Within 1km



FEMA Risk Within 1km

Sea Level Rise Along the Pacific Coast



Data and Methodology

Flood Risk is a combination of the risk from several causes of flooding: coastal (storm surge and sea level rise), flooding from bodies of water overflowing (e.g. riverine), and surface water flooding (pluvial). 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

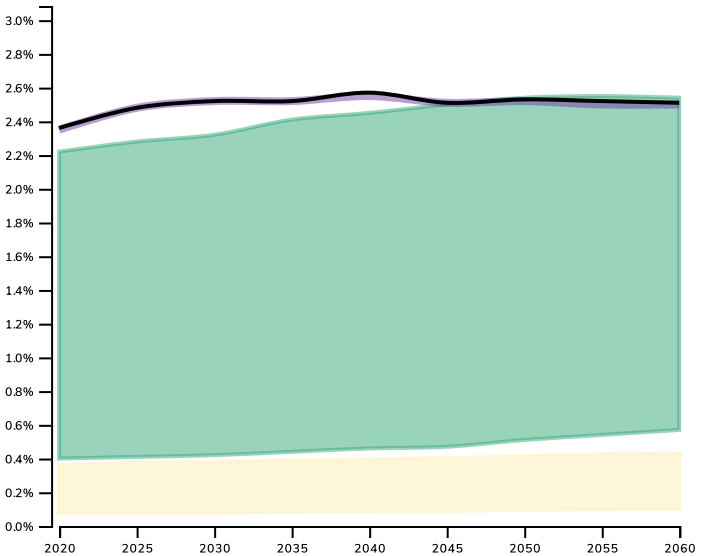
These types of flooding can occur away from the coast. Fluvial, or riverine, flooding happens when a river, lake, or stream overflows onto the surrounding land. Pluvial flooding includes flash floods and surface water, and occurs when extreme rainfall creates a flood away from a body of water. We use 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

Projected Fire Risk, 2020-2060

This property's Fire Risk is **41,** which indicates a relatively **moderate** risk of increased fire activity, as measured by *area burned* due to climate change.
See **p. 15-16** for information on factors contributing to this risk rating. See **p. 17** for definition and data.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
This Property	0.02%	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
County Average‡	2.35%	2.48%	2.52%	2.52%	2.55%	2.51%	2.52%	2.50%	2.50%
CA Average‡	1.83%	1.90%	1.95%	2.04%	2.07%	2.15%	2.23%	2.30%	2.31%
U.S. Average‡*	0.27%	0.28%	0.28%	0.30%	0.30%	0.31%	0.32%	0.34%	0.34%



†colored area represents 40th-60th percentile scores for population.
‡50th percentile score for population.
*population in 48 conterminous U.S. states.

Reduce your risks from fire

Reduce the risk to your home 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 home.

• 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 home.

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 home. 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.

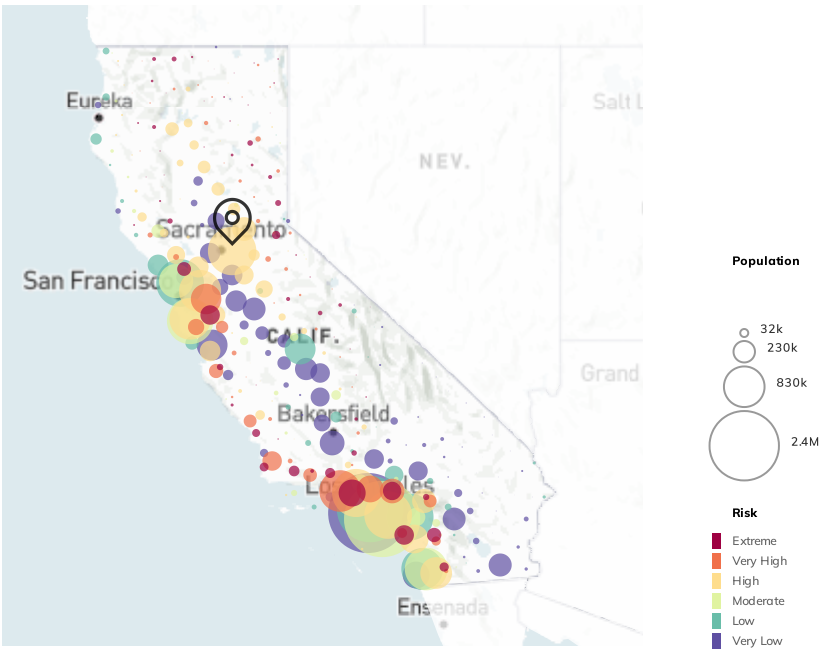
• Reach out to neighbors, family and friends using text messages or social media in an emergency.

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

Local Comparison: Fire Risk

Statewide Fire Risk

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



Fire Scores by Population in CA

Risk Level	Population	Total	%
Extreme		1.6M	5%
Very High		3.0M	9%
High		8.6M	25%
Moderate		6.1M	18%
Low		6.6M	19%
Very Low		8.6M	25%

Data and Methodology

We measure wildfire risk using areal extent (proportion burned), intensity (flame length exceedance probability), and severity (conditional risk to potential structures). The first parameter, areal extent, is based on the MC2 dynamic global vegetation model, which uses information from an ensemble of 19 CMIP5 climate models on changing temperatures, precipitation, and atmospheric CO2. MC2 simulates the competition among plants for light, nitrogen, and soil water to project vegetation coverage in the future; this projected vegetation coverage is translated into an expected proportion of area likely to burn across the U.S. The other two parameters derive from US Forest Service data products: intensity represents the likelihood that flame length exceeds four feet if a fire were to occur and severity represents the risk posed if a house were present and a fire occurred. We produce a wildfire risk rating from the weighted geometric average of relative ranked values for these statistics. The weighting is .5 for areal extent, .25 for intensity, and .25 for severity.

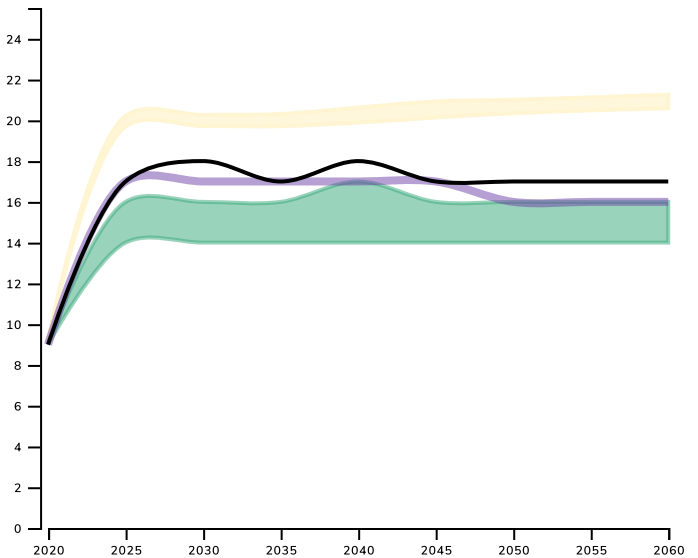
Data Sources:

Abatzoglou, John T. 2013. “Development of Gridded Surface Meteorological Data for Ecological Applications and Modelling.” International Journal of Climatology 33 (1): 121–31. https://doi.org/10.1002/joc.3413. Abatzoglou, John T., and Timothy J. Brown. 2012. “A Comparison of Statistical Downscaling Methods Suited for Wildfire Applications.” International Journal of Climatology 32 (5): 772–80. https://doi.org/10.1002/joc.2312.
Bachelet, Dominique, and David Turner. 2015. Global Vegetation Dynamics. Wiley Online Library.
Barbero, R., J. T. Abatzoglou, N. K. Larkin, C. A. Kolden, and B. Stocks. 2015. “Climate Change Presents Increased Potential for Very Large Fires in the Contiguous United States.” International Journal of Wildland Fire 24 (7): 892. https://doi.org/10.1071/WF15083.
Eidenshink, Jeff, Brian Schwind, Ken Brewer, Zhi-Liang Zhu, Brad Quayle, and Stephen Howard. 2007. “A Project for Monitoring Trends in Burn Severity.” Fire Ecology 3 (1): 3–21. https://doi.org/10.4996/fireecology.0301003. Westerling, Anthony Leroy, and UC Merced. n.d. “California’s Fourth Climate Change Assessment,” 57.

Projected Extremely Wet Days, 2020-2060

This property's Storm Risk is **40,** which indicates a relatively **moderate** risk of increased number of *extremely wet events* —two consecutive days totaling above **1.2" (3.1cm)** of precipitation—due to climate change. Historically, an extremely wet event happens **8** times per year, with about **1.6" (4.1cm)** of rain per storm. In 2050, about **17** extremely wet events are projected, with about **2.0" (5.1cm)** of rain per storm.
See **p. 22-23** for information on factors contributing to this risk rating. See **p. 24** for definition and data.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
This Property	9	17	18	17	18	17	17	17	17
County Average‡	9	17	17	17	17	17	16	16	16
CA Average‡	9	16	16	16	16	16	15	15	15
U.S. Average‡*	9	20	20	20	20	21	21	21	21



†colored area represents 40th-60th percentile scores for population.
‡50th percentile score for population.
*population in 48 conterminous U.S. states.

Reduce your risks from storm

Easy maintenance can help keep your home 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 home 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

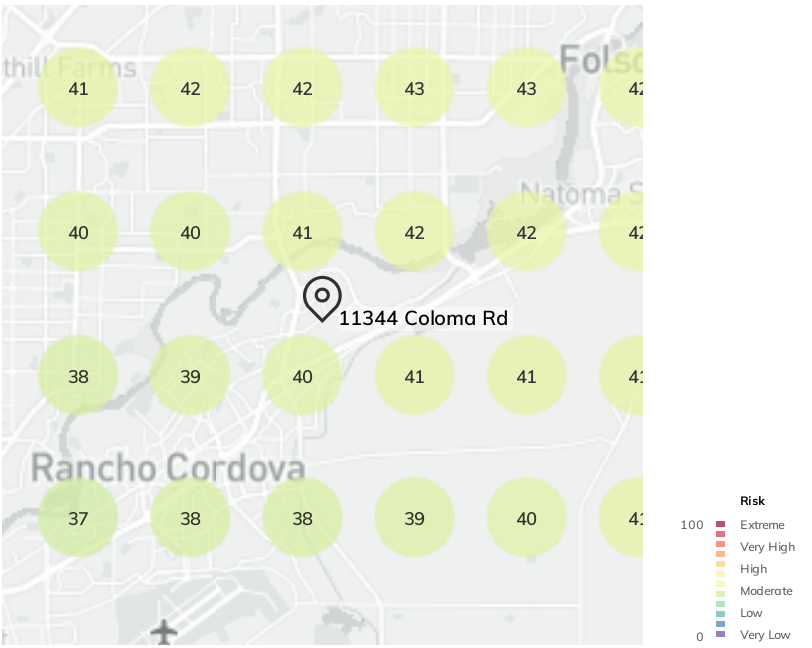
• Check property drainage to ensure proper water flow and prevent your home from being flooded.

• Foundation Drainage: install perforated pipe around your home'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.

Local Comparison: Extreme Precipitation Risk

The Extreme Precipitation Risk within about **5 miles** of 11344 Coloma Rd is all within the **moderate** risk range.

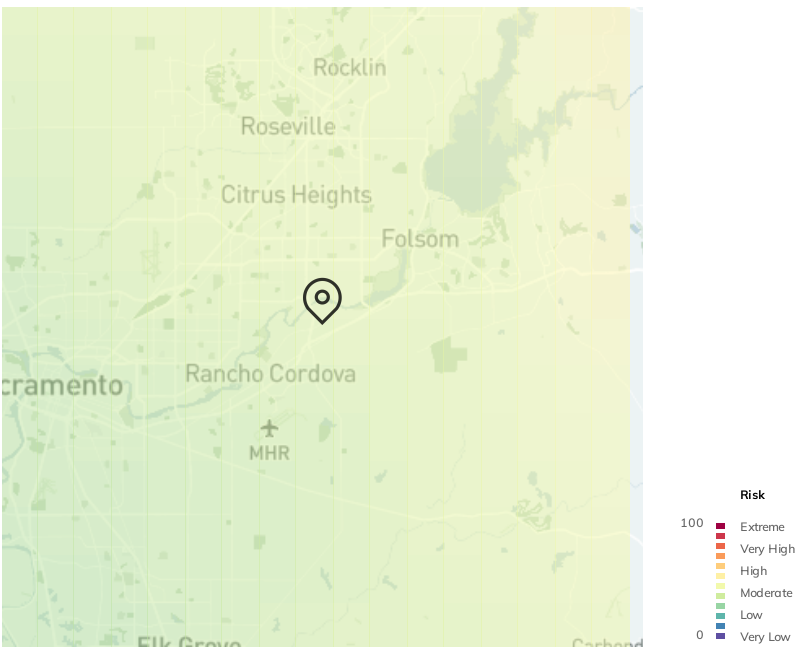


Extreme Precipitation Scores by Population Within 5 Miles

Risk Level	Population	Total	%
Extreme		0.0	0%
Very High		0.0	0%
High		0.0	0%
Moderate		230k	100%
Low		0.0	0%
Very Low		0.0	0%

Regional Extreme Precipitation Risk

The Extreme Precipitation Risk within about **25 miles** of 11344 Coloma Rd ranges from **low** risk to **high** risk.

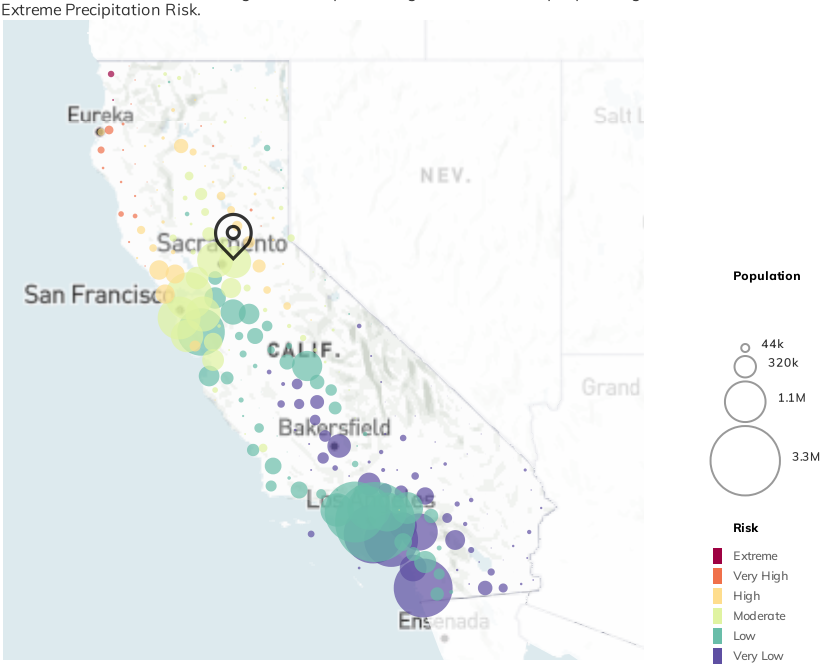


Extreme Precipitation Scores by Population Within 25 Miles

Risk Level	Population	Total	%
Extreme		0.0	0%
Very High		0.0	0%
High		45k	1%
Moderate		2.8M	93%
Low		170k	5%
Very Low		0.0	0%

Statewide Extreme Precipitation Risk

The numbers of people with each Extreme Precipitation Risk level in California, and their approximate locations, are shown below. Larger circles represent a greater number of people living in that area with that Extreme Precipitation Risk.



Extreme Precipitation Scores by Population in CA

Risk Level	Population	Total	%
Extreme		31k	0%
Very High		170k	0%
High		1.7M	4%
Moderate		8.0M	21%
Low		18M	45%
Very Low		11M	30%

Data and Methodology

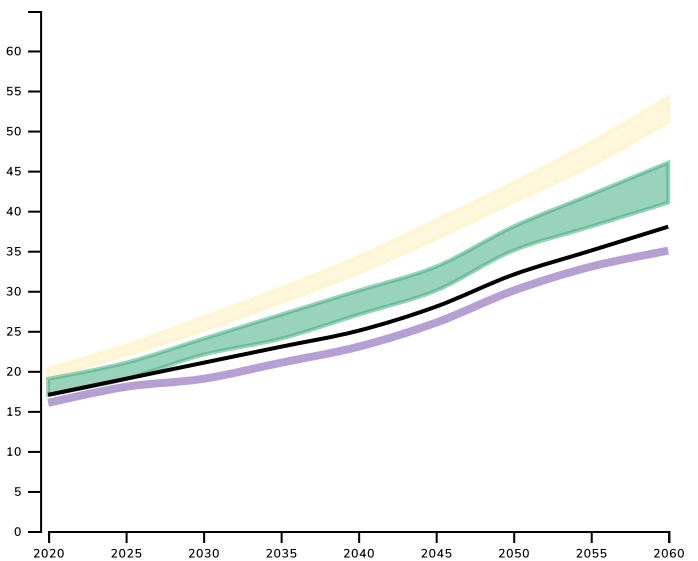
Storm Risk measures future risk of increased extreme precipitation such as rain, snow, sleet, and hail. The risk rating uses historical and projected precipitation from the HadGEM2 global climate model. Historical records determine what is considered an extreme precipitation event. Storm Risk near zero means extreme precipitation risk will remain low, while a high risk indicates a high likelihood of extreme precipitation events in the future.

Data Sources:
LOCA Statistically Downscaled CMIP5 Projections for North America

Projected Extremely Hot Days, 2020-2060

This property's Extreme Heat Risk is **31,** which indicates a relatively **low** risk of increased number of *extremely hot days* — above **103°F (39°C)** —due to climate change. Historically, an extremely hot day happens **8** times per year. The number of extremely hot days projected in 2050 is **32.**
See **p. 29-30** for information on factors contributing to this risk rating. See **p. 31** for definition and data.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
This Property	17	19	21	23	25	28	32	35	38
County Average‡	16	18	19	21	23	26	30	33	35
CA Average‡	18	20	23	26	29	32	37	41	44
U.S. Average‡*	20	23	26	30	34	38	43	48	53



†colored area represents 40th-60th percentile scores for population.
‡50th percentile score for population.
*population in 48 conterminous U.S. states.

Reduce your risks from heat

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

Inside Your Home

• 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 home 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.

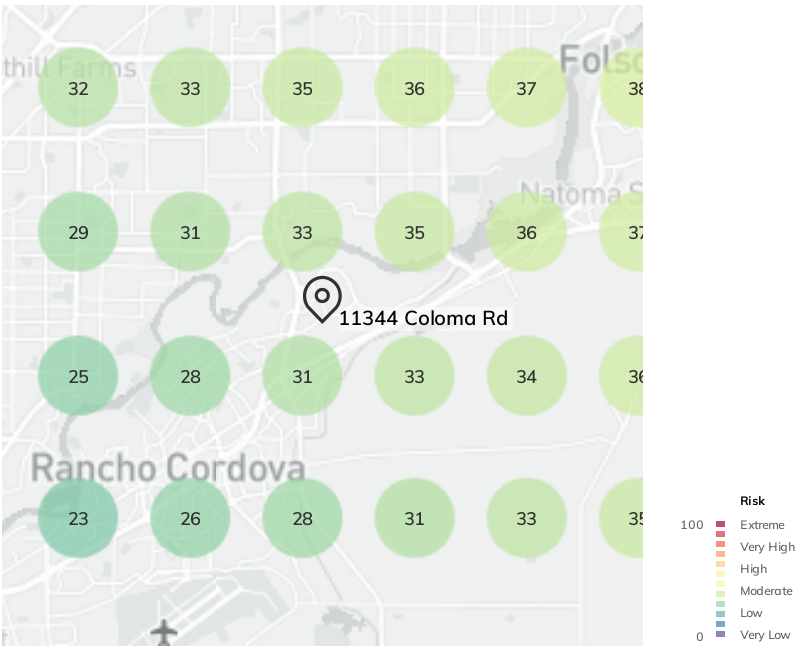
Outside Your Home

• Create shade by adding trees and awnings. Shade your home 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 home.

Local Comparison: Extreme Heat Risk

The Extreme Heat Risk within about **5 miles** of 11344 Coloma Rd ranges from **low** risk to **moderate** risk.

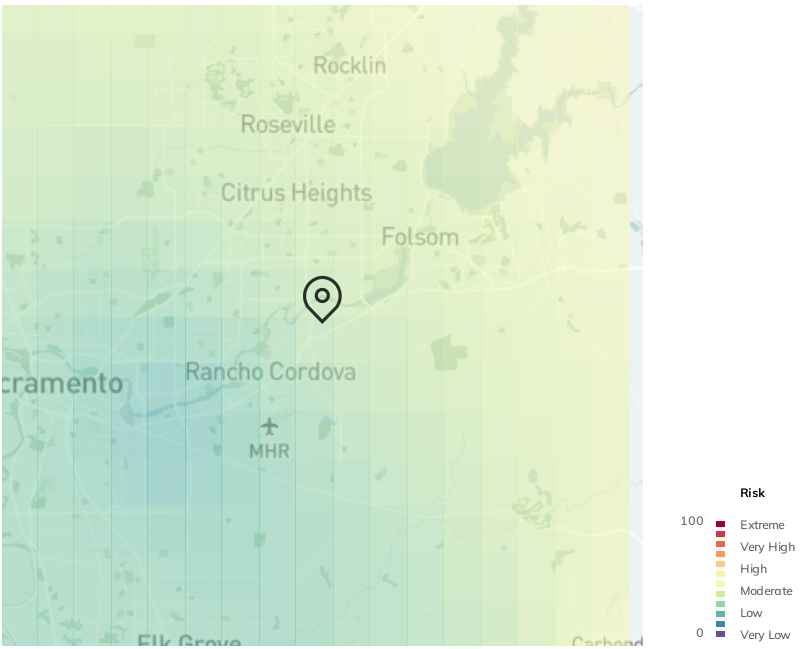


Extreme Heat Scores by Population Within 5 Miles

Risk Level	Population	Total	%
Extreme		0.0	0%
Very High		0.0	0%
High		0.0	0%
Moderate		68k	30%
Low		160k	70%
Very Low		0.0	0%

Regional Extreme Heat Risk

The Extreme Heat Risk within about **25 miles** of 11344 Coloma Rd ranges from **low** risk to **high** risk.

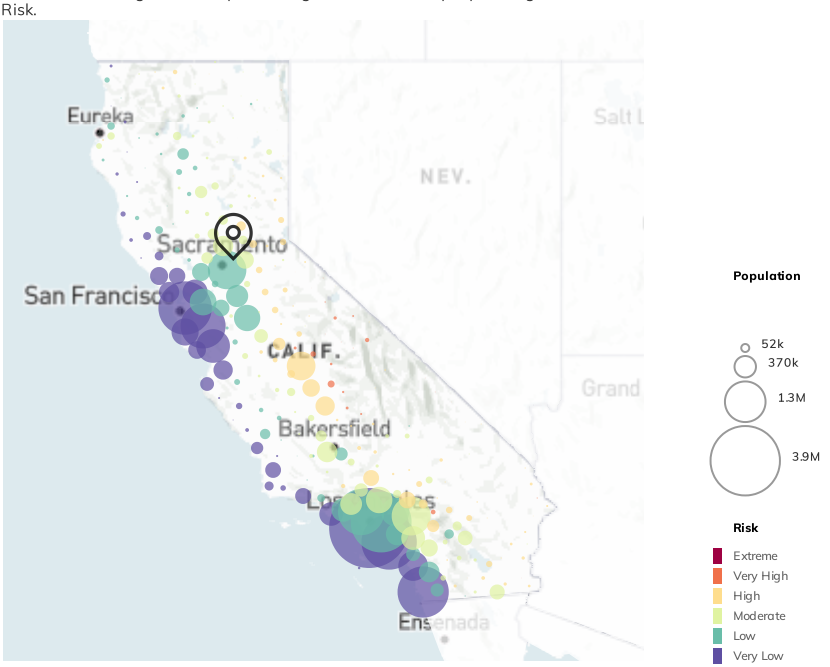


Extreme Heat Scores by Population Within 25 Miles

Risk Level	Population	Total	%
Extreme		0.0	0%
Very High		0.0	0%
High		1.5k	0%
Moderate		900k	30%
Low		2.1M	70%
Very Low		0.0	0%

Statewide Extreme Heat Risk

The numbers of people with each Extreme Heat Risk level in California, and their approximate locations, are shown below. Larger circles represent a greater number of people living in that area with that Extreme Heat Risk.



Extreme Heat Scores by Population in CA

Risk Level	Population	Total	%
Extreme		0.0	0%
Very High		140k	0%
High		2.7M	7%
Moderate		5.9M	15%
Low		11M	28%
Very Low		19M	50%

Data and Methodology

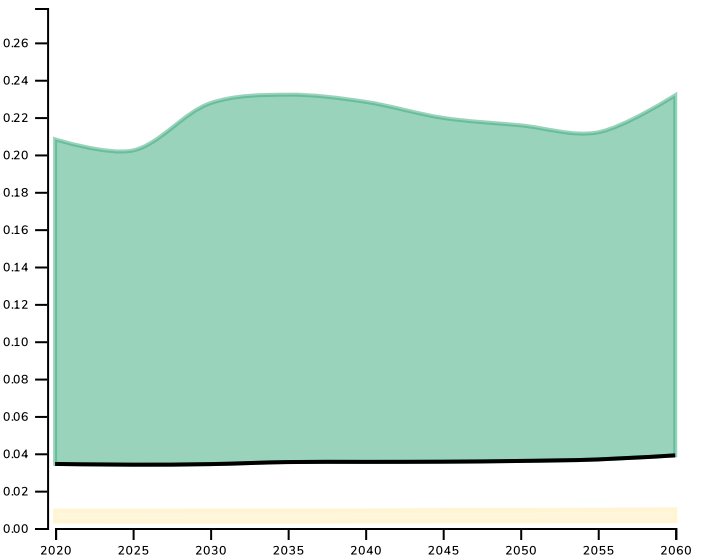
Heat Risk measures future risk of extremely hot days. The risk rating uses historical and projected high temperatures from several climate models. Historical records determine what is considered an extremely hot day. Heat Risk near zero means that heat risk will remain low, while a high risk indicates a high likelihood of extremely hot days in the future.

Data Sources:
LOCA Statistically Downscaled CMIP5 Projections for North America

Projected Water Stress, 2020-2060

This property's Drought Risk is **27,** which indicates a relatively **low** risk of increased water stress due to climate change.
See **p. 34-35** for information on factors contributing to this risk rating. See **p. 36** for definition and data.

	2020	2025	2030	2035	2040	2045	2050	2055	2060
This Property	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
CA Average‡	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.08	0.11
U.S. Average‡*	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01



†colored area represents 40th-60th percentile scores for population.
‡50th percentile score for population.
*population in 48 conterminous U.S. states.

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

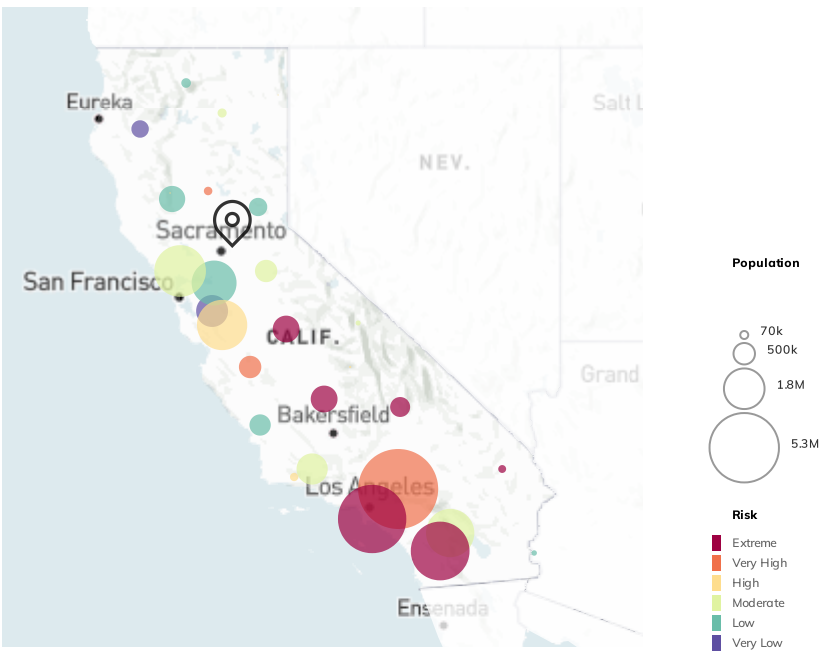
• Replace traditional lawns with drought-tolerant, native landscaping. Most drought-tolerant plants require only about a third of the water needed for a traditional lawn.

• 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.

Statewide Drought Risk

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



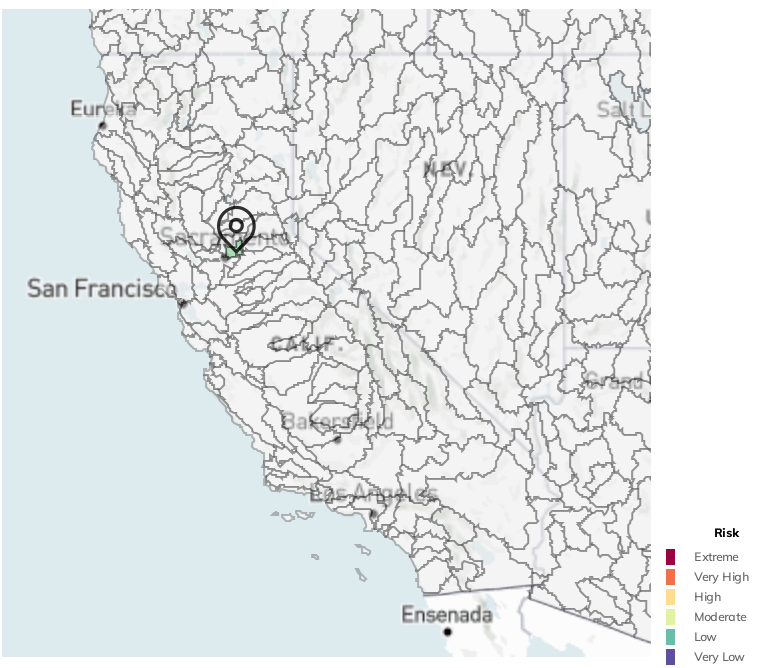
Drought Scores by Population in CA

Risk Level	Population	Total	%
Extreme		9.7M	28%
Very High		8.0M	23%
High		3.1M	9%
Moderate		8.0M	24%
Low		3.9M	11%
Very Low		1.5M	4%

Data and Methodology

Drought Risk represents the risk a property faces of experiencing increased water stress in the future with climate change. We measure water stress by calculating the average ratio of water demand to water supply within a watershed region. To calculate Drought Risk, we adjust this water stress ratio by the projected change in water demand and supply through 2050, so that properties in areas with a higher increase in this ratio will have relatively higher Drought Risks. 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 watershed. The map below shows your watershed, the land area that channels natural water supply to your property. 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 see the source of your water supply.

References:
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.



ClimateCheck Risk Analysis Overview

Greenhouse Gas Concentration Scenarios

Climate modeling uses assumptions about the concentration of greenhouse gases in Earth's atmosphere. Greenhouse gases that have already been emitted into the atmosphere are having a strong influence on the climate, resulting in more extreme weather events and increased strain on natural resources. The trajectory of future climate change is also strongly dependent on how much, and how quickly, greenhouse gas emissions are reduced. Representative Concentration Pathways (RCPs) are templates used to model climate change under different emissions scenarios. The analysis in this report is based on an assumption of RCP8.5, the "business as usual" scenario in which emissions continue to increase without policies to drastically reduce emissions.

Data Sources

Risk ratings for each hazard are based on publicly available models. See each hazard's section above for more information on the data used.

Methodology

Each hazard risk rating is primarily based on two factors: the current risk, and the projected change in risk from now through 2050. See each hazard section for details on how to interpret risks.