

This Silicon Valley city has the highest coastal flood risk in California

By **Jack Lee**, Weather Science Data Reporter

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Homes and office buildings are seen along Redwood Creek in Redwood City on April 3.
Stephen Lam/S.F. Chronicle

Redwood City has the highest risk for severe coastal floods of any California city, according to data released Wednesday by Climate Central. The science and communication nonprofit’s report finds over 22,000 people — 27% of the city’s total population — reside in an area at risk of a 100-year flood occurring in the next 25 years.

The city, located in San Mateo county, is one of a number of California coastal and bayshore communities that face risks from damaging floods, particularly in the coming decades, as climate change causes sea levels to rise.

The terrain in San Mateo County, where an estimated total of 29,000 people are vulnerable to intense floods by mid-century, is low-lying along the bay shoreline. It doesn’t take a dramatic rise in water levels to produce impacts, said Len Materman, CEO for the San Mateo County Flood and Sea Level Rise Resiliency District. There’s also a large amount of development along the bayshore, including San Francisco International Airport.

Of the San Mateo County cities affected by San Francisco Bay, Redwood City has the longest shoreline, Materman said: “It’s the most exposed.”

California cities with the highest risk of future coastal flooding

Estimated number of people who would be affected by severe coastal flooding

City	Affected people	Share of population
Redwood City	22,400	27%
Huntington Beach (Orange County)	15,500	8%
San Rafael	13,000	21%
Stockton	9,700	3%
San Jose	6,900	1%
Long Beach	6,200	1%
Newport Beach (Orange County)	5,200	6%
Alameda	3,600	5%

The data is based on analysis of projected sea level rise by 2050 and water levels expected with a 100-year flood for cities with populations over 50,000.

Table: Jack Lee/S.F. Chronicle · Source: [Climate Central](#)

In 2024, Redwood City published a [sea-level rise vulnerability and adaptation planning study](#) detailing where there are flood risks, including the Redwood Shores community, parts of downtown and the Friendly Acres neighborhood. The latter two areas were also identified in the Climate Central report.

City officials did not respond to requests for comment.

Climate Central’s analysis relies on detailed terrain and building data, sea-level rise projections for 2050 and projected water levels in a severe flood. The sea-level calculations are based on a middle-of-the-road climate scenario. The flood estimates are for a severe 100-year event, which has a 1% chance of happening in a given year. The analysis also considers levee data where available, like in California.

Buildings were identified as vulnerable to floods if their elevations were below the flood level, an approach commonly known as “bathtub modeling.” This method, however, oversimplifies how flooding occurs and “doesn’t fully capture the full totality of coastal flood risk,” said Brett Sanders, a professor of civil and environmental engineering at UC Irvine.

For example, the approach doesn’t account for waves that can create serious coastal floods, Sanders said. In a recent study, he and co-authors advocate for researchers using physics-based models to provide a more comprehensive picture of flood risk.

Sanders isn’t convinced Redwood City definitively faces the highest coastal flood risk in California. He added that factoring in the effects of intense rainfall and runoff, which weren’t part of the Climate Central analysis, would also affect flood vulnerability.

Kelly Van Baalen, a project manager on Climate Central’s sea-level rise team who managed the coastal flood analysis, agreed that the analysis takes a simplified approach and added the work is intended to be a first step.

“We totally acknowledge this is a screening level tool,” Van Baalen said. “We still think that has a lot of value.”



An aerial view of mobile homes and businesses along East Bayshore Road are seen in Redwood City, Calif., Thursday, April 3, 2025. Situated in Silicon Valley by the San Francisco Bay, the coastal area of Redwood City is facing the highest risk for coastal flood in California, according to newly released data by nonprofit Climate Central. Stephen Lam

Van Baalen emphasized the importance of work by local experts. The San Francisco Bay Conservation and Development Commission provides an [online tool](#) that visualizes flooding impacts in the Bay Area.

The Climate Central analysis highlights other Bay Area and California cities that could be impacted by severe coastal flooding in the future, including Huntington Beach (Orange County) and San Rafael.

The report estimates about 13,000 people live in areas of San Rafael (Marin County) that will face severe coastal flood risk in 2050. In both San Mateo and Marin counties, “a lot of the population happens to live along the shoreline,” said Dana Brechwald, assistant planning director for climate adaptation with the Bay Conservation and Development Commission.

Low-lying parts of Marin County already face flooding during king tides, which occur during the winter and result in water levels 1 to 2 feet higher than average high tides.

The Bay Conservation and Development Commission released a regional shoreline adaptation plan in December 2024. It’s important that neighboring locations coordinate to collectively address impacts of future sea level rise, said Materman, of the San Mateo County Flood and Sea Level Rise Resiliency District.

“At some level, you need to think about the entirety of the Bay,” Materman said. “And start thinking, what’s the best solution for all of us?”

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