Report -- Major quake on San Andreas fault could be twice as damaging as previously thought

Kevin Smith, Los Angeles Newspaper Group, 11-15-16

A newly released analysis from CoreLogic reveals that a major earthquake along the San Andreas fault could damage twice as many homes as previously thought.

Northern and southern portions could both erupt into bigger quake

The global property information and analytics firm based its data on revised earthquake risk science from the U.S. Geological Survey's Uniform California Earthquake Rupture Forecast. The forecast concludes that a large temblor could occur simultaneously in both Northern and Southern California.

The San Andreas fault has traditionally been viewed as two independent segments with earthquake ruptures on the northern and southern faults that were deemed mutually exclusive of one another.

3.5 million homes could be damaged, costs could hit $289 billion

The CoreLogic analysis shows that an 8.3 magnitude earthquake along the San Andreas fault — which was previously thought possible only along the northern segment of the fault line — could result in a full rupture. That would increase the number of homes damaged by 126 percent, from 1.6 million to 3.5 million homes. And the cost to rebuild the homes would rise nearly 80 percent from $161 billion to $289 billion.

A similar scenario that expands earthquake risk from the southern San Andreas fault to a full rupture increases the number of homes damaged by 54 percent, from 2.3 million to 3.5 million. The cost to rebuild would also jump 111 percent from $137 billion to $289 billion.

For a magnitude 8.2 or 8.0 earthquake scenario, the number of damaged homes would jump from 1.9 million to 2.5 million, CoreLogic's analysis shows, and the cost for rebuilding would increase from $130 billion to $183 billion.

The USGS's latest forecast includes a more complete database of California faults with additional geological observations of past earthquake dates and fault configurations. It also incorporates improved and updated "deformation models" to improve estimates of the movement along those faults.

"This new science that came out from the USGS a couple years ago shows the probability of fault lines erupting in multiple segments that are close enough together to trigger a much larger earthquake," said Maiclaire Bolton, a seismologist and senior product manager for global earthquake products with CoreLogic. "We've taken that hazard science and implemented it into our own risk model to determine financial losses. This new science will fundamentally change the way we think about earthquake risk in California."

A quake along the entire fault would be rare

Bolton acknowledged that an 8.3 magnitude quake running the entire length of the San Andreas Fault would be rare.

“It would be pretty far out there,” she said. “And the only way we could determine where we sit on the cycle is to know a lot about past earthquake occurrences. We would need to have a record for a good many years of how frequently they happened.”

All about the ‘creeping section’

Ken Hudnut, a science risk advisor for the USGS, said the possibility of a quake running the entire length of the San Andreas Fault is not 100 percent accepted, although it’s increasingly being considered as a possibility. He noted that the northern and southern portions of the fault line are bridged by a 95-mile stretch known as the “creeping section.”

“This is a fault between the tiny town of San Juan Bautista at the northwest end and Parkfield at the southern end that is continually moving,” he said. “It’s moving and releasing energy instead of getting locked up. The rocks are of a different type there and there is enough fluid so they get ground down with a lot of slippage.”

It has traditionally been thought that a quake originating on either side would likely not move through the creeping section to create a bigger event. But in light of new information, Hudnut said that idea is “not completely out of bounds.”

Few Californians have earthquake insurance

Bolton said families should have earthquake kits at the ready and also have earthquake insurance. Many don’t have insurance because the deductibles tend to be high.

Chris Nance, a spokesman for the California Earthquake Authority, which provides about 75 percent of the earthquake policies that are sold in the state through participating insurance carriers, said only 10 percent of California homeowners earthquake insurance.

“In areas with a higher risk, the percentage is higher than the statewide average for obvious reasons,” Nance said earlier this year. “In the greater Los Angeles area it’s 15 to 17 percent, and in San Diego it’s 20 percent.”