

# Work to begin on strengthening key aqueduct

**Kevin McCallum, Santa Rosa Press Democrat, 1-11-13**

When the next large quake strikes Santa Rosa, fires could break out across the city, potentially wreaking as much devastation as the quake itself.

But the water to extinguish those fires might be in short supply. That's because a quake of 7.0 magnitude or higher likely would rupture the vital but aging water transmission line that crosses the Rodgers Creek fault at Sonoma Avenue.

Not only would most of eastern Santa Rosa soon be without water, but the Sonoma Valley, too, would quickly run dry, causing untold additional headaches for residents coping with a major disaster.

But a project getting underway soon aims to strengthen a key portion of the line, known as the Santa Rosa Aqueduct, by installing a thicker gauge pipe specially designed to flex in the event of an earthquake.

“This project will help secure the future of our water supply when the Rodgers Creek fault decides to stir,” Steve Koldis, project manager for the Sonoma County Water Agency, told the Santa Rosa City Council.

Construction is set to begin in early February and last until August. Heavy machinery will dig a big trench in the westbound lane of Sonoma Avenue between Doyle Park Drive and Doctor's Park Drive. One lane of traffic will remain open in each direction, but delays of five to 30 minutes are expected. The work will be limited from 8:30 a.m. to 4:30 p.m., but still has the potential to affect nearby schools, hospitals, offices and homes.

The project is the first of four major earthquake-related upgrades to the agency's sprawling collection and distribution system, which provides water to agencies servicing 600,000 people in Sonoma and Marin counties.

The other projects involve upgrades of transmission lines that cross the Russian River and Mark West Creek, as well as the installation of 20 isolation valves designed to help reroute water around quake damage.

All told, the projects are estimated to cost \$18 million, about half of which will be borne by the Federal Emergency Management Agency and the balance by ratepayers.

The Santa Rosa aqueduct project is the first because it is considered one the most vulnerable points in the agency's system.

It pipe runs from the agency's water collectors on the Russian River near Forestville, across Santa Rosa to four storage tanks in Spring Lake Regional Park. From there it continues into the Sonoma Valley, delivering 800 million gallons of water a year to the Valley of the Moon Water District.

An agency analysis showed that the three-foot wide pipe, which was installed in 1959, has a high likelihood of rupturing in the event of a 7.0 earthquake. There is a 31 percent probability of a magnitude 6.7 or greater quake occurring on the fault in the next 30 years. It is the highest-risk fault in the Bay Area, according to the agency.

The aqueduct is 12 feet beneath Sonoma Avenue. It is made of an eighth-inch thick steel that is coated on the inside with mortar to protect the pipe against corrosion. The pipe crosses the fault in a three-block wide area of Sonoma Avenue near the Santa Rosa French-American Charter School.

ground is likely to shear north to south.

The new pipe is designed to withstand three feet of horizontal ground movement and one foot of vertical movement, Koldis said. That's partly because it will be thicker, 3/4-inch steel.

But equally important is how it will be installed. The current pipe is buried directly in the dirt. But the new 2,000-foot section of pipe will be encased in a dual layer of fabric. This will act as a sleeve that will allow the pipe to slide inside the trench, Koldis said. Under seismic forces, the steel pipe will actually stretch, deforming but not rupturing, he said.

If it does rupture, special isolation valves being installed at each end will allow the damaged pipe to be sealed off and the water rerouted around the rupture while repairs are completed.

Third District Supervisor Shirlee Zane said the project is worthwhile because it's not a matter of if, but when, a major quake will strike along the fault.

“I think the more we invest in prevention, the more we save in the long run,” she said.

The Santa Rosa aqueduct project will cost \$3.2 million, nearly \$1.4 million of which will come from a FEMA grant.

An open house to answer questions about the project is scheduled for Wednesday, Jan. 30. It takes place from 6:30 to 8:30 p.m. at the Santa Rosa French-American Charter School, 1350 Sonoma Ave.