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Local flood control officials are studying New Orleans

By Dan Stober
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DANGER: THOUSANDS OF PEOPLE LIVE BEHIND EMBANKMENTS THAT DO NOT MEET THE STANDARDS OF FEDERAL AGENCIES

Bay Area flood control officials are intently following the news from New Orleans as the levees there fail for a second time. And with good reason: Tens of thousands of people around the edges of San Francisco Bay also live behind levees and could be flooded if they were breached.

From Novato in the north to Palo Alto and Fremont and even Alviso at the southern tip of the bay, homes are protected by these earthen embankments. "There are very few areas around the bay where the natural shoreline hasn't been modified," said David Lewis, executive director of Save the Bay.

Many levees do not meet the current design standards of the U.S Army Corps of Engineers or the Federal Emergency Management Agency.

Some, including a few in Palo Alto, are not high enough. Others, especially the salt pond levees that line other parts of the South Bay, were built of mud and never intended for flood protection, even though they are now relied on for that purpose.

The flood dangers are not on the scale of those in New Orleans. The topography is different, giving residents in the flood zone "some place to retreat to," in the words of Josh Collins of the San Francisco Estuary Institute.

But the chances of flooding are real, and the nightmare scenario -- an earthquake breaking levees at high tide during a winter rainstorm -- would flood thousands of homes.

'Recipe for disaster'

"When you mess with gravity, when you have sea water that is above dry land, it's always a recipe for disaster," said Will Travis, executive director of the San Francisco Bay Conservation and Development Commission, a state agency.

The Army Corps of Engineers has launched a \$16 million effort to get a handle on what needs to be done with levees in the South Bay and how much it would cost.

The task of maintaining the levees, which run not only along the bay but also beside creeks that empty into it, is expensive and difficult. The levees sink over time as their weight compresses the bay mud beneath them, a situation that will become more dangerous as global warming raises sea levels. And responsibility for maintenance is sometimes confused by a byzantine mix of owners, former owners, political boundaries and maintenance agreements.

East Palo Alto, for example, has responsibility for a levee on the San Francisquito Creek that it didn't build and can't afford to maintain -- though it depends upon the levee for protection.

In Alviso, where the ground sank after water was pumped out for agriculture in the early 1900s, residents are keenly aware that they live behind levees, 13 feet below sea level. "When the water comes over the top, we won't flood, we will drown," said resident Dick Santos, who, as chairman of the Santa Clara Valley Water District, has a say in flood control issues.

Alviso is "the closest thing we have to New Orleans around here," said Greg Zlotnick, another board member.

But few people realize that a sizable portion of Palo Alto, too, is below the level of the bay at high tide. The city is protected by a series of levees in the Baylands Nature Preserve. If they break at the wrong time (and one was overtopped briefly this winter), seawater could flow west, covering Highway 101 and flooding 1,700 homes with 5 feet of water in places.

At an unusually high tide, which occurs about twice a year, the water in the bay is high enough to potentially flood south Palo Alto, from the bay to Ross Road, said Glenn Roberts, the city's director of public works. "People are astonished" to learn that their seemingly high-and-dry homes could be flooded by water from the bay two miles away, he said.

The story of how Palo Alto came to be protected by levees is repeated in various forms around the bay. Originally, much of Palo Alto east of Middlefield Road was marshland. Farmers and ranchers drained the marshes, filled them with dirt and piled up levees to keep out bay water. After World War II, the farms became residential neighborhoods.

Better protection

In the 1960s, after severe flooding in 1955 and 1958, the farmers' levees were replaced with more serious protection. Hikers in the baylands may not realize that they are walking atop those levees.

Today the levees are less than two feet higher than the water at high tide, failing to meet FEMA standards. As a result, homeowners in the threatened area are required to buy flood insurance that can cost more than \$700 a year. The levees must be raised a couple of feet to meet the standards.

The city council voted against bringing the levees up to date in the 1980s. ``Palo Alto said, `We don't want you to touch it. You're going to ruin the views and harm the environment,' " said Zlotnick, who represents Palo Alto on the water district board.

Emily Renzel, a baylands advocate who was on the council at the time, said recently that a consultant's report proved that the combination of events required to push bay water over the levees into neighborhoods was highly unlikely.

By contrast, Foster City homeowners 10 miles to the north have dodged mandatory insurance, even though the town is virtually surrounded by dikes, because the dikes were rebuilt to FEMA standards.

The South Bay's levees are the subject of an Army Corps of Engineers study, now in its infant stages. The flood-control study will include the shoreline from Palo Alto south, around the bottom of the bay up to San Leandro in the East Bay. The Santa Clara County Water District announced Friday that it would pick up \$6.4 million of the costs, while the Coastal Conservancy kicks in \$1.4 million.

In the end, there may be federal money for improvement of levees, said Yvonne LeTellier, the project manager in the corps' San Francisco office.

The corps researchers will be coordinating their work with the South Bay Salt Pond Restoration Project, an ambitious effort to return the salt ponds of the Cargill company -- now owned by state and federal wildlife agencies -- to wetlands, while retaining the flood protection the salt ponds now offer by acting as a buffer between the open bay and the shore.

Contact Dan Stober at dstober@mercurynews.com or (650) 688-7536.