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Agencies working to make area more 'earthquake-proof'

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A recently published traffic alert appeared routine: Construction work will cause a slowdown on the Fingerboard Road ramp to the Verrazano-Narrows Bridge.

But this seemingly ordinary traffic interruption had a startling twist — the installation of earthquake-resistant bearings, part of a statewide bridge rehabilitation program in effect since last year.

An earthquake on Staten Island? The mere thought of bloody victims trapped under tons of rubble with no help in sight is enough to shake up fear.

Although the city's Office of Emergency Management assesses that the likelihood of an earthquake hitting the city is almost non-existent, said staff analyst Barney Puleo, there is a clear controversy as to whether or not the city — including Staten Island — could be devastated by an earthquake.

Borough residents have felt tremors from earthquakes in the past, and some experts say a major earthquake could strike the East Coast at any time — they say when it does happen, New York City will be in big trouble.

"New York City has had earthquakes. New York City can have an earthquake. New York City will have an earthquake, probably within our lifetime," said Charles Merguerian, professor of structural geology at Hofstra University, Hempstead, L.I.

The state bridge rehabilitation program is one measure intended to shore up New York's infrastructure.

Whenever bridges are repaired under the direction of the state Department of Transportation (DOT), new bearings are installed to make the structure more resistant to the kind of pressure exerted by earthquakes or heavy storms, said Phyllis Hirshberg, spokeswoman for the department. The \$3.4 million project will take in 17 Island areas in total.

National concern over a 1989 San Francisco earthquake spurred the city emergency management office to send a delegation to observe damages, Puleo said. Next, New York City officials began to think about preparing for an earthquake here.

"We do have an earthquake plan," Puleo said. "We know the kinds of damage that are caused by a West Coast earthquake. Basically, there are building collapses and fires caused by the breaking of gas lines — we deal with build-

ing collapses every day."

The city's general evacuation plan would be applied in the event of an earthquake, he said. "We have evacuation plans for things like hurricanes and other types of disasters."

Generally, Puleo said, public schools would be used as shelters because of their kitchen and bathroom facilities. Most shelters are on elevated land, so people would be safe during floods.

However, flooding is not usually a major concern during an earthquake.

"An evacuation route is an evacuation route," Puleo said in defense of the plan. He added that 39 states are more susceptible to earthquakes than New York.

"You must be kidding," said Klaus Jacob, a senior research scientist at the Lamont-Doherty Earth Observatory of Columbia University, Palisades, N.Y. "That's all nice talk, but it amounts to little or nothing," he said.

An earthquake measuring as high as 7.5 on the Richter scale could hit New York, Jacob said. Just because there is no record of it occurring before, doesn't mean it won't happen, he said. City officials fail to fully understand what an earthquake would do to New York, he added, and compared the city to a driver not wearing his seatbelt.

"The emergency button [the city] is going to push is the same button as if one building fell down," Merguerian said. "There's no need to lie awake and worry about it," but people should know to evacuate their homes and get to an open area in the event of an earthquake.

"I think it's inevitable for a large earthquake to strike New York — and with tremendous power," he said. "It seems ridiculous not to have some public education." He added that there is no way to predict when, where or how strong a quake will be.

But he did predict that if an earthquake hit the city at a magnitude of just 5.0 on the Richter scale, the damage would exceed that of California's 1989 quake, which measured 6.9.

"There would be a tremendous amount of damage here because of the weakness of the infrastructure," Merguerian said. He stressed that although the city has implemented new building codes, they are not nearly as effective as measures taken in California for earthquake-resistant buildings.

His mapping of the city reveals two basic faults in the earth's crust, running through Manhattan, Brooklyn and the Bronx, and hundreds of smaller faults and fractures that originate from them. Todd Hill seems to have a higher concentration of fractures and faults than other Staten Island areas, he said.

In February, Mayor Rudolph Giuliani signed a bill into law that places the word "earthquake" in the city building codes for the first time, said Vahe Tiryakian, Buildings Department spokesman. The law, which will go into effect in February 1996, will seismically enhance any new buildings constructed in the city by making them stronger.

Since 1987 the Port Authority (P.A.) has been designing buildings to withstand earthquake forces, said Joe Englot, chief structural engineer of the P.A.

Buildings are designed so that people would have time to evacuate before being hit by collapsing ceilings or walls, he said. There is no way to prevent a window from cracking, he said, but there is a way to prevent glass from falling out and injuring someone.

"The saving of lives is the most important thing," he said. Buildings made of concrete block and brick without steel reinforcement are the most dangerous to be in during an earthquake, he said.

Confident that bridges controlled by the P.A., such as the George Washington, Bayonne and Goethals bridges and the Outerbridge Crossing, would withstand damages during an earthquake, Englot pointed out they were constructed well with double reinforcements — if one method of support failed, another would back it up.

Schools are probably safe for shelter, he said, as they have been held to higher building standards than other types of buildings.

The last earthquake to be felt in our area was Jan. 15. It was centered in the Reading area of southeastern Pennsylvania and measured 4.6 on the Richter scale, according to the National Earthquake Information Center in Golden, Colo. Residents from West Brighton, Grant City and Port Richmond called the Advance to report they had felt tremors.

The last earthquake to cause substantial damage in the city was in 1884. It hit between Staten Island and Brooklyn, and according to the New York Times, cracks opened up in Brooklyn that were 12 feet long and 12 feet deep.



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