



## Acquisition and Relocation from Multiple Hazards

### Full Mitigation Best Practice Story

#### *Los Angeles County, California*



**Los Angeles County, CA** - After the 1994 Northridge Earthquake, the Castaic Union School District conducted a study of the earthquake-related risks. The District had 63 buildings that was a mix of permanent and portable structures with construction dating as far back as 1917, serving approximately 1,200 students and 115 staff. The San Andreas and San Gabriel fault systems, two of the most active faults in the Nation, pass through the District's area. The assessment revealed that earthquake-related damage was not the only risk.

Besides seismic damage, the study revealed two additional threats: flooding from the Castaic Dam (located only 1.7 miles upstream) and fire or explosion from a rupture in nearby oil pipelines (a 1925 gas-welded pipeline, and a 1964 modern arc-welded steel pipeline). If the dam were to fail, the 2,200-acre reservoir could release nearly 105 billion gallons of water, inundating the area below with 50 feet of water.

The potential economic costs from either a dam failure or oil pipeline break following an earthquake were enormous. The first potential cost would be incurred from both building and content damage. Replacement of the school buildings would cost an estimated \$7.7 million in direct construction costs (1995 dollars). Second, if such an earthquake occurred, alternative school facilities would have to be located and rented at an estimated cost of over \$500,000 per year. Third, the community would have to absorb the costs of losing the educational services provided by the District in the time period between the actual loss of the facilities and the relocation to temporary facilities. The School District calculated the cost of the lost public services based on the operating expenses required to provide the services. The daily cost of lost educational services was estimated at \$28,601.

The District determined that the most feasible method to reduce their risks would be to condemn the structures on the old, high-risk site and relocate to a low-risk area. The location selected was completely out of the dam inundation area and far removed from the high-pressure oil pipelines. Thus, eliminating the risk posed by the dam and oil pipelines hazards. While the campus would still be within an active earthquake fault area, the new campus building would be constructed to fully conform to 1995 building code provisions.

The District then agreed to turn the land over to the Newhall County Water District. The old school property is located above two active wells, which the water district can use to supply their customers in Castaic. In doing so, they changed the property deed to restrict human habitation and development, and to return the site to natural open space.

The Castaic School District financed the relocation effort through a combination of the \$20 million generated by the sale of school bonds and a \$7.2 million grant through FEMA's Hazard Mitigation Grant Program for the market value of the property, including the existing structures and infrastructure. The district used this funding to rebuild the elementary and middle school, and district office, and to relocate the elementary school students into temporary buildings during the construction. The new middle school opened in the fall of 1996, and the new elementary school opened in August 1997.

#### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IX**

State: **California**

County: **Los Angeles County**

City/Community: **Los Angeles**

### Key Activity/Project Information

Sector: **Public**  
Hazard Type: **Earthquake**  
Activity/Project Type: **Acquisition/Buyouts; Relocation**  
Activity/Project Start Date: **09/1995**  
Activity/Project End Date: **09/1997**  
Funding Source: **Hazard Mitigation Grant Program (HMGP)**  
Funding Recipient: **Critical Facility - School**  
Funding Recipient Name: **Castaic School District**

### Activity/Project Economic Analysis

Cost: **\$27,200,000.00 (Estimated)**  
Non FEMA Cost:

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**  
Federal Disaster #: **1008 , 01/17/1994**  
Value Tested By Disaster? **No**  
Repetitive Loss Property? **Unknown**

### Reference URLs

Reference URL 1: <http://neic.usgs.gov/>  
Reference URL 2: <http://www.oes.ca.gov/Operational/OESHome.nsf/1?OpenForm>

### Main Points

- School district conducted a study of the earthquake-related risks, revealing two additional threats: flooding from the Castaic Dam, and fire or explosion from a rupture in nearby oil pipelines.
- The District determined that the most feasible method to reduce their risks would be to condemn the structures on the old, high-risk site and relocate to a low-risk area.
- The property deed was then restricted from human habitation and development, and returned the site to natural open space.

