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CF13-1357-S2

ITEM 3 PUB. SAFETY 11/13/13

J. White

**STATEMENT of J.H. McQUISTON on
SEISMIC SAFETY of BUILDINGS**

Honorable Chairman and Members of the Committee:

I am a graduate of Caltech and a State-licensed Engineer for over 50 years. I have seismology experience.

Los Angeles County is covered with seismic faults, many of which could generate seisms of Richter 7 or larger.

Caltech and the Southern California Earthquake Center have published articles on faults affecting public safety in Los Angeles, predicting massive damage, causing deaths, loss of rescue services, and bankruptcy of Cities.

1. It is vital for Los Angeles to require hazard notices to be mounted on buildings not certified to withstand seisms near known faults. Northern California is way ahead of Los Angeles in posting the notices.¹

2. Typically, a large fault doesn't rupture instantaneously for its whole length. The fault's breaks in sequence produce periodic-waves over time. Those waves excite buildings back-and-forth, as we all know.

If the natural-frequency of the building matches the periodic-wave frequency, the pendulum-sway will be magnified and continue swaying until the building members deform or rupture. The dead-weight of the building causes it to collapse. Slender buildings are the least-capable of remaining safe.

Enclosed is an illustration of a Los Angeles building, built to code, which may collapse from a seism originating in far-away Park field, CA. Imagine what could happen from a seism originating in Arcadia!

3. Buildings are shaken by the ground beneath them. If the ground is "fluidized", the heavy building sinks into it. If the ground is solid-rock, the base will move with the ground.

However, a building's weight is over 100,000 pounds for a small stucco bungalow. A small concrete facility will probably weigh over 500,000 pounds. Both want to stay at rest and not move with the land.

If the building is to "keep up with the ground", so it does not disintegrate, **the base must propel the rest.**

As a practicing engineer, I know most buildings will not be able to do that. Massive "shear walls" are probably-nonexistent. **Buildings without massive, balanced shear walls on each floor will collapse.** And massive concrete walls add to the building's inertia.

Google Earth has data on the Internet for every building in Los Angeles. It is no trouble for City to locate suspect- buildings having large gaps in their periphery at any level.

California Public Resources Code requires a property owner to prove his building is safe. The City merely has to notify the property owner to submit proof of safety.

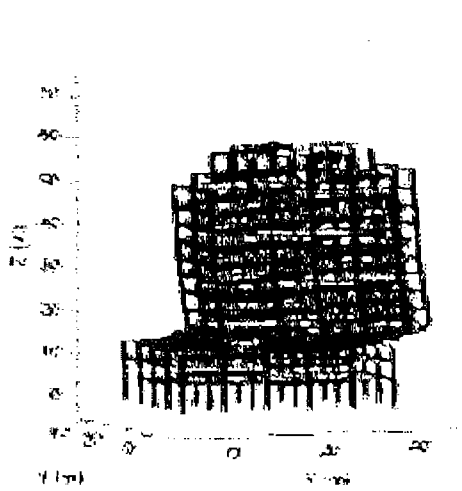
If the property owner can't or won't submit proof, **up goes the notice on the building, which won't deny entry.**

Respectfully submitted,

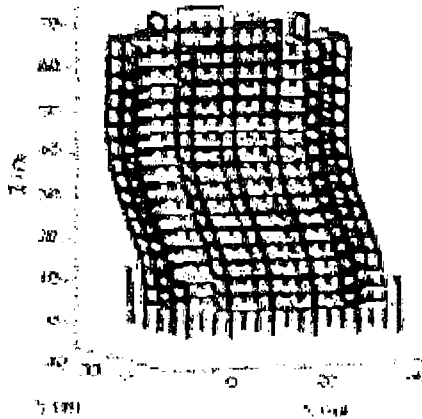
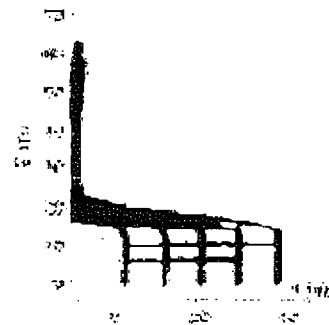
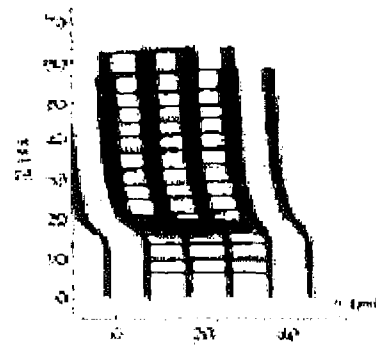
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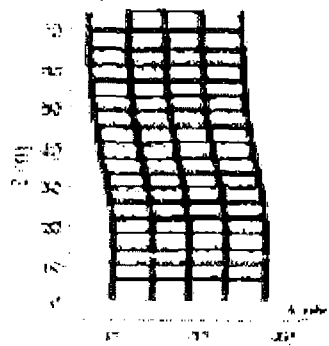
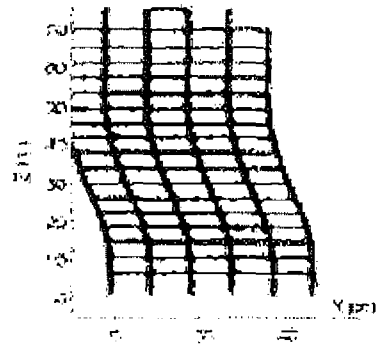
1. Calif Pub Resources Code §2621 et seq; §2624 (City may establish policies stricter); 2621.8 (City liability for not enforcing notice).



Existing Building Displacement View
Elevations: East and West
Displacement Time Histories



Strengthened Building Displacement View
Elevations: East and West
Displacement Time Histories



[This is what will happen to the "Blue Cross" Building on Canoga Avenue, when the expected 7.9 quake happens in Parkfield, CA, 158 miles Northwest of Canoga. The RED building represents the actual structure, built to Los Angeles Building Code. The YELLOW building represents the expected response if the structure were strengthened as much as possible, better than the Seismic Upgrade now in the Los Angeles Code. IT TOO is a loss and uninhabitable.]

**SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT /
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT**



Los Angeles Rail Rapid Transit Project Metro Rail

**U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION**



SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT



JULY, 1989

locations of known faults are shown on Figure 3-10. Eleven faults, one syncline and one anticline have been identified in the study area. They are:

- Santa Monica Fault
- Sixth Street Fault
- San Vicente Fault
- Los Cienega Fault
- Third Street Fault
- MacArthur Park Fault
- Hollywood Fault
- Four unnamed faults
- Hollywood Syncline
- Los Angeles Anticline

Two of the above faults are considered active or potentially active. "Active" faults are those that are believed to have moved within the last 10,000 years. "Potentially active" faults are believed to have moved between 10,000 and 2 million years ago. The Hollywood fault is considered active, and the Santa Monica fault is considered potentially active. Geologists estimate that the probability of a Richter magnitude seven earthquake associated with these faults in the next 100 years is five percent. Metro Rail has been designed to a limiting peak horizontal acceleration of 0.70g from a maximum credible earthquake magnitude 7.0 on the Richter Scale related to the Santa Monica Fault.

New LPA Mid-Wilshire Segment intersects the MacArthur Park Fault and another unnamed fault between Alvarado Street and Vermont Avenue. The North Segment (along Vermont) of the New LPA intersects the Los Angeles Anticline near Beverly Boulevard.

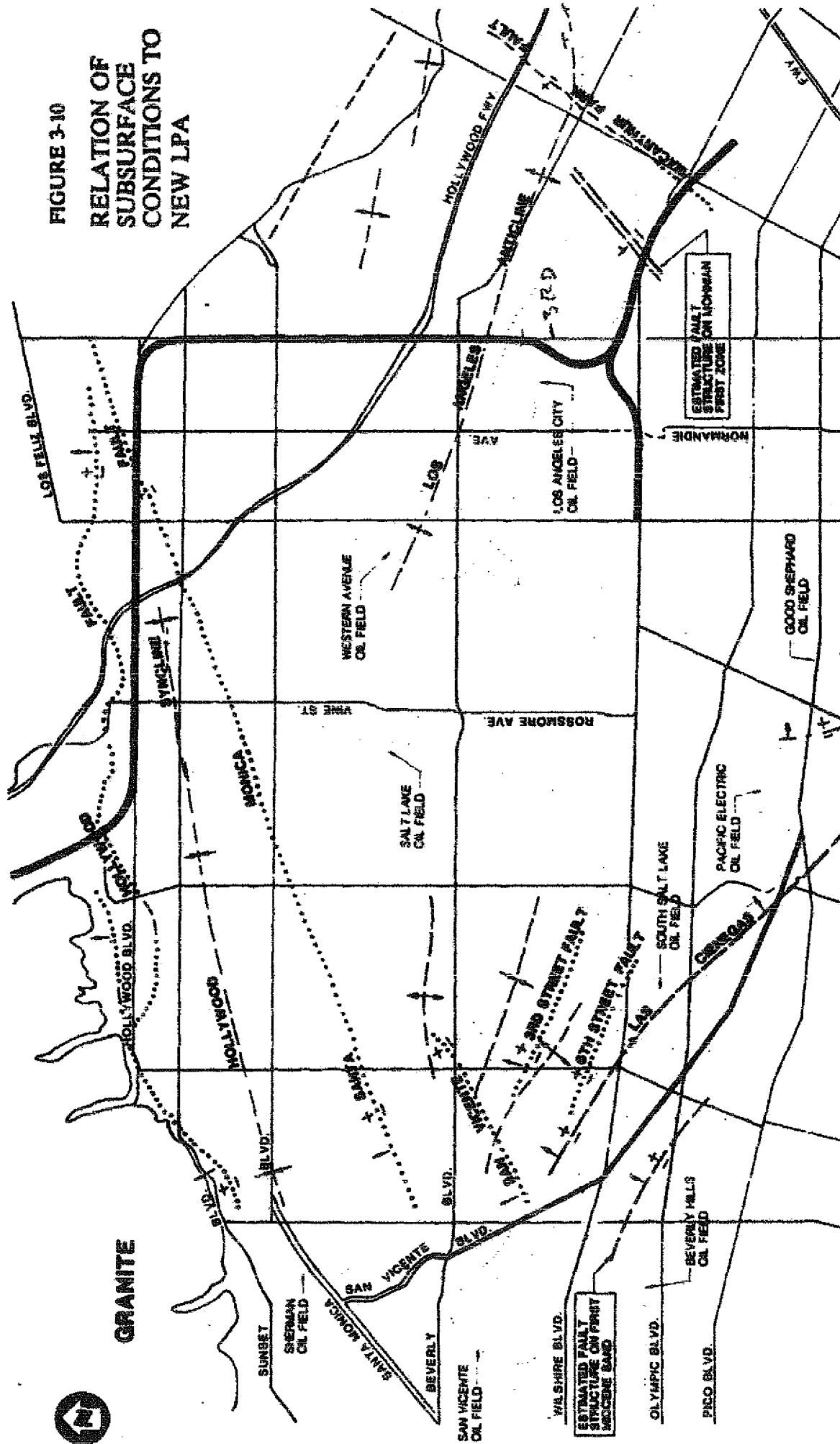
Hollywood Boulevard segment of the New LPA intersects the Santa Monica Fault west of Normandie Avenue. The Valley segment intersects the Hollywood Syncline and the Hollywood Fault.

Oil field locations also are shown on Figure 3-10. Eight known oil fields have been identified in the study area. They are:

- Los Angeles City Oil Field
- Western Avenue Oil Field
- Las Cienegas Oil Field (encompassing the Murphy, Fourth Avenue, Good Shepherd, and Pacific Electric Areas)
- Beverly Hills Oil Field
- South Salt Lake Oil Field
- Salt Lake Oil Field
- San Vicente Oil Field
- Sherman Oil Field

Mid-Wilshire Segment and the North (Vermont Avenue) Segment of the New LPA cross over or near the Los Angeles City Oil Field in the area of Wilshire Boulevard and up Vermont Avenue nearly to Beverly Boulevard. This field is estimated to be at a depth of 375 feet. This is the only oil field in the path of the New LPA.

**FIGURE 3-10
RELATION OF
SUBSURFACE
CONDITIONS TO
NEW LPA**



EXCERPTS FROM SEIS/SEIR

"5.11 SUBSURFACE CONDITIONS" (P. S-5-7)

* * *

"The potential for significant seismic effects on Metro Rail has been thoroughly examined. Eleven known faults have been identified in the study area. However, only two of the eleven, the Hollywood Fault and the Santa Monica Fault, are considered active or potentially active. "Active" faults are those that are believed to have moved within the last 10,000 years. "Potentially active" faults are believed to have moved between 10,000 and 2 million years ago. Geologists estimate that the probability of a Richter magnitude seven earthquake associated with these faults in the next 100 years is **5 percent**. The system has been designed to a **limiting peak horizontal acceleration of 0.7 g** from a maximum credible earthquake of 7.0 on the Richter scale related to the Santa Monica Fault."

* * *

"CHAPTER 7: COMMENTS AND RESPONSES ON THE DRAFT SEIR * * *" (P. 7-2-41)

* * *

"SC12. **COMMENT:** On page 3-47 (of the May 1988 Addendum to the Draft SEIS/SEIR), the statement is made that the Hollywood fault is considered active. The State Geologist does not classify the Hollywood fault as active. (**Robert S. Horrill, Los Angeles City Engineer**)

"**ANSWER:** Notwithstanding the State Geologist's classification, consultants for the Metro Rail Project consider the Hollywood Fault to be active. See discussion in Chapter 3, Section 11. "

NOTE: The State Geologist does classify the Santa Monica and Hollywood Faults as **active**.

The City Engineer was neither practicing "public safety" nor compliance with State law.