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GeoEthics in Hollywood: Is the Hollywood fault active, or is that just another illusion we have created?

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The Hollywood fault forms the southern boundary of the Hollywood Hills, placing igneous, metamorphic and some Cenozoic sedimentary rocks against the Quaternary valley fill of the Hollywood Basin [Fig. 1]. The 15-km long fault has a complex geologic history, accommodating left-lateral displacement and reverse slip since the Pliocene. Strain rates are unconfirmed but estimated at 0.3-0.9 mm/yr. This is a fault to be concerned about considering the billions of dollars of real estate and tens of thousand of people who live in its proximity. But how concerned? The City of West Hollywood has required geological fault investigations and building avoidance of at least 50 feet from the fault's active trace since the late 1990s, resulting in numerous site investigations that collectively have not advanced the state of the knowledge very far. Geologic studies in support of the LA Metro subway [2] and subsequent follow-on research [3] did find evidence to interpret an early Holocene-age (~8 ka) displacement event. In 2014, and based almost exclusively on a "not in my backyard" press campaign against the Hollywood Millennium project, the California Geological Survey zoned the eastern half of the Hollywood fault as active under their fault zoning program [Fig. 1]. But is this ethically defensible? What if that study was incorrect?

Since the City of West Hollywood's and the California Geological Survey's zoning of the fault, tens of millions of dollars have been invested in geological studies of the fault for building projects. All of these dollars have been reluctantly spent by the private sector, and all of this work has been eagerly done by private sector consulting firms. The results? With only three exceptions, two in West Hollywood, and one in the City of Los Angeles, and all having issues with their interpretations, no Holocene-age fault displacements have been found. Instead, definitive evidence shows that the fault traces, assumed to be Holocene, have instead not ruptured in 10s to 100s of thousands of years. So what is the ethical alternative? Should we ignore it? Are we geo-professionals too enamored of the financial gains such regulatory zoning provides that we are unwilling to suggest changes? Could we move past the "one size fits all" zoning, meaning that single-family homes are held to the same standard as 40-story buildings? Several case studies will be presented and recommendations made for a more progressive program of fault hazard zoning.

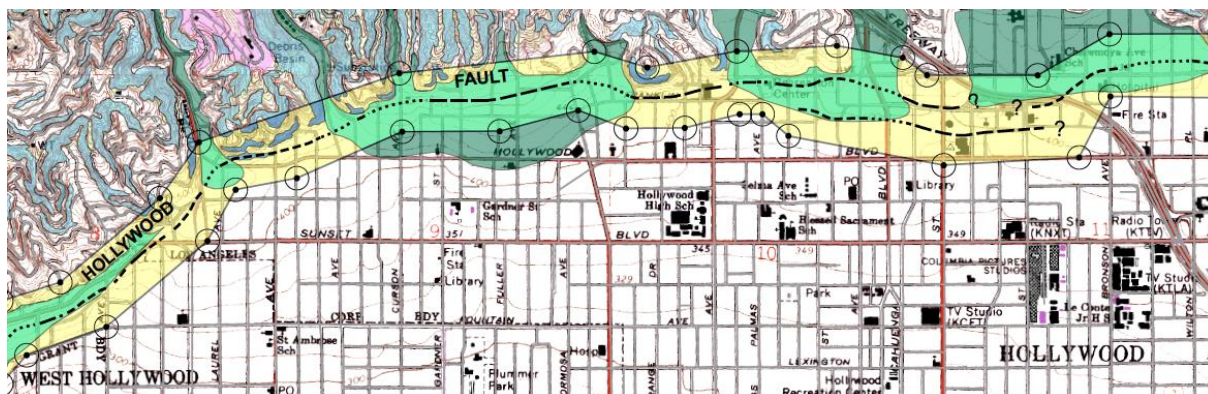


Fig. 1: Hollywood fault zone [1] across the southern Hollywood Hills north of Los Angeles.

References:

- [1] California Geological Survey, 2014, Earthquake Zones of Required Investigation, Hollywood 7.5' Quadrangle.
- [2] Dolan, James F. and others, 1997, Active Tectonics, Paleoseismology and Seismic Hazards of the Hollywood fault, Northern Los Angeles Basin, California; GSA Bulletin. v. 109, p. 1595-1616.
- [3] Dolan, James F. and others, 2000, Paleoseismic evidence for an early- to mid-Holocene age of the most recent surface rupture on the Hollywood fault, Los Angeles, California; BSSA, v 90, p. 334-344.

