## Article for local newspaper on San Andreas Fault by Tabor and Wrucke

## Preparing for the Earthquake

Considering all the uproar over lack of governmental response to the Katrina hurricane disaster, We find it amazing that there are still citizens of Portola Valley resisting Town efforts to diminish the disaster we will have when the next big earthquake occurs in our vicinity along the San Andreas Fault. Yes, there will be great damage form earthquake shaking in the Bay Area in general, and in communities along the Fault in particular. We, as citizens, cannot eliminate all earthquake hazard as individuals, or collectively through our local government, but we can do much to prevent loss of life and to mitigate property damage. Most of the preventive measures involve bringing existing buildings up to certain structural standards or building new structures to withstand serious shaking.

The Town of Portola Valley is in the process today of trying to mitigate impending earthquake loss at the Town Center, but questions keep coming up from citizens legitimately concerned about costs. What still seems unclear to many people is why the Town is moving its Town Center such a short distance out of the recognized deformational zone of the San Andreas Fault.

There are two major causes of earthquake damage in a major earthquake. One is strong shaking and the other is ground distortion or rupture. Mostly due to historic accident and lack of information, Portola Valley School, now the Town Center, was built on a beautiful level site, but one subject to considerable ground distortion or rupture. Unlike the simple straight fault trace common to much of the San Andreas Fault, the trace at the Town Center is a wide one of several fractures. This is a zone of potential significant ground distortion in a major earthquake in Portola Valley. At great expense, buildings could be designed to withstand the offset of the ground under them and even not to fall apart if tilted. They would also have to resist the very violent shaking. But if we were to go to that much trouble, why not just place the buildings away from the wide zone of deformation. Then they would only have to accommodate shaking. To avoid legal issues of construction within the required set-back zone of the fault(s) at the present site placing the building out of the deformation zone is what the Town is planning to do,. The tennis courts and playground areas to the west, have been shown by trenching and drilling to be free of past faulting and deforming events. Studies along the San Andreas Fault and other faults have shown that ground breaks and ground deformation almost always recur along previous fault breaks. Thus we don't expect the fault to suddenly jump to the west in the next earthquake episode.

Nothing in future geologic events is guaranteed, however, and the next question is why not place the Town Center buildings a long way from the fault? The farther the buildings are from the location of the earthquake (epicenter) which will be somewhere along the Fault, the less shaking to be expected. Even those geologists mentioned in "Argument Against Measure H" in the Sample Ballot know that. A close look at the shaking potential map of Portola Valley (<u>http://www.abag.ca.gov/cgi-bin/pickmapx.pl</u>) shows that shaking ranging through three levels from "Very Strong" to "Violent" to "Very Violent" can be expected throughout Portola Valley. A few bedrock areas, in the Alpine Hills area, adjacent to Jasper Ridge and near Skyline will only get "Very Strong" shaking. But the map is very broad brush and comes with a caveat minimizing the certainty between areas of "Very Violent" and merely "Violent" shaking etc.

The present and planned Town Center both lie within the "Very Violent" zone of potential shaking. Obviously a Town Center at a distant site would be preferable, but not much would be gained if the Town Center remains in Portola Valley. Buying new land would be more costly than building to withstand even "Very Violent" shaking versus "Very Strong" shaking. Of course, we could move the whole town to a region of less severe shaking, but somehow we don't think that will happen anymore than folks will be abandoning New Orleans.

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