Huftile and Yeats (1995) proposed that since ~0.5 Ma slip on the deep offshore Oak Ridge fault has been transferred to folds along the northern margin of Ventura basin at rates of 5 mm/yr by a subhorizontal detachment. The upper part of the Oak Ridge fault was abandoned in this model. Our results indicate no change in the last 1 m.y. of rates of vertical motions due to slip on the offshore Oak Ridge fault and due to related folding, although there may be a change in the partitioning of this motion between faulting and folding. Shortening across the offshore Oak Ridge fault and its hanging-wall folds (Mid Channel trend) is only a few hundred meters in the last 1 m.y., while shortening across the Ventura Avenue anticline and across the onshore E-W part of the Oak Ridge fault is much greater (Figs. 8, 9). This shortening can be measured from the map restoration figure as 1.9 and 2.6 km respectively, averaged over restored blocks (percent shortening times N-S distance for Ventura Avenue anticline, or thrust overlap plus folding for Oak Ridge fault). The oblique view of the structure also suggest a kinematic link between the onshore Oak Ridge fault and the Ventura Avenue anticline. The rate of shortening across the Ventura Avenue is at least 3.8 mm/yr if it formed in the last 0.5 Ma, as suggested by Huftile and Yeats (1995). However, the post-0.5 (post top Saugus Formation, Fig. 3) shortening across the E-W part of the onshore Oak Ridge fault and hanging-wall fold is only 1.3 km (Sorlien and others, submitted, after Yeats, 1988). Therefore, only 2.6 mm/yr shortening across the onshore Oak Ridge fault is available for displacement transfer from a blind offshore Oak Ridge fault to the Ventura Avenue anticline, not the 5 mm/yr proposed by Huftile and Yeats (1995). Even this 2.6 mm/yr must be decreased for a regional decrease in shortening from east to west and for the folding along the Oak Ridge trend (Sorlien and others, submitted; Gratier and others, in press).

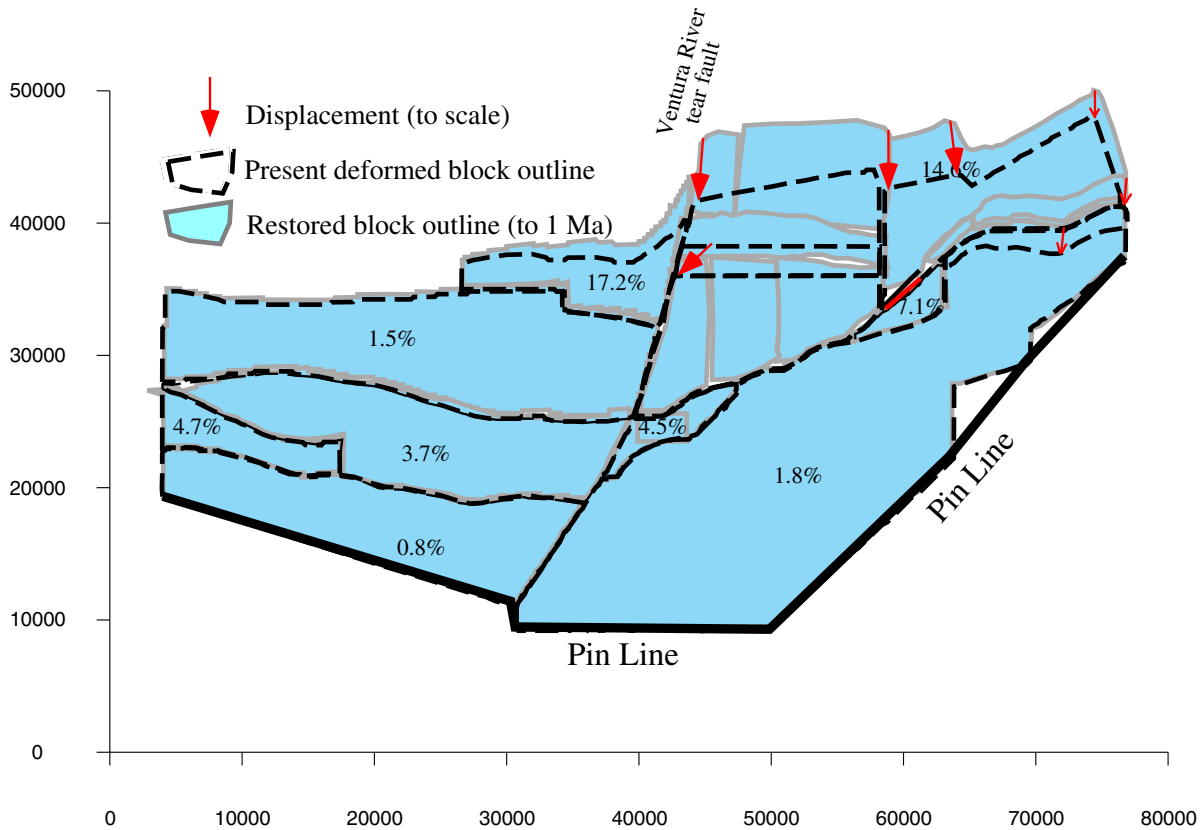

Figure 8: Low displacement restoration of the 1 Ma horizon. This restoration is correct for the existing onshore map of Yeats (1981). The arrows connect the corners of unfolded, restored blocks to the present-day deformed location of these points, with respect to the pin line.