

## 38-2 Potential Hazards.

### A. **Surface-Fault Ruptures**

Surface faulting has been identified as a potential hazard in Weber County. Maps have been produced delineating the known area where a hazard may exist from surface fault ruptures. Broad subsidence of the valleys accompanying surface faulting may affect areas several miles away from the fault. These effects are not considered here, but are covered below in Subsection B.

Studies along the Wasatch fault have indicated that during a “characteristic” earthquake which produces surface faulting, offsets of six (6) feet or more may occur on the main trace of the fault zone. This offset will result in formation of a near-vertical scarp, generally in unconsolidated surficial deposits, that begins to ravel and erode back to the material’s angle of repose (33-35 degrees) soon after formation. Antithetic faults west of the main trace may also form, generally exhibiting a lesser amount of offset, but sometimes as much as several feet. The zone between these two faults may be complexly faulted and tilted with offset along minor faults of several inches or more.

Based upon this data, it is difficult, both technically and economically, to design a structure to withstand six (6) feet or more of offset through its foundation. Thus, avoidance of the main traces of the fault is the principal risk reduction technique that can be reasonably taken.

No critical facility or structure for human occupancy shall be built astride an active fault. In some areas adjacent to the main trace but still within the zone of deformation, avoidance may not be necessary. Less damaging (smaller) offsets of less than 4 inches, and tilting may occur and structural measures may be taken to reduce casualties and damage. However, structural damage may still be great, and buildings in the zone of deformation may not be safe for occupants following a large earthquake.

Due to the scale used to map these zones, there is not enough detail to delineate all fault traces and zones of deformation at a particular location, therefore, site specific plans and studies shall be required for development in or adjacent to the delineated areas.

Upon submittal, review and Planning Commission approval of site specific plans and studies with recommendations, produced by a qualified engineering geologist, setbacks shall be a minimum of 50 feet from an active fault trace. A reduction in the setback will be considered if the report presents evidence to justify a reduction acceptable to the Planning Commission.