SALT LAKE CITY SCHOOLS
ESTIMATES OF DEATH AND INJURY
DURING SEISMIC GROUND SHAKING

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Introduction

The Board of Education of the Salt Lake City School District authorized a study of the seismic vulnerability of each of the schools in the district. Once this study was completed, the board appointed a seismic study committee made up of a broad spectrum of citizens to make recommendations to them as to what actions should be taken to mitigate the potential life and property losses associated with an earthquake. The study committee met during the fall of 1989 and submitted its report on December 20, 1989. This paper deals with the portion of the overall seismic study committee report that estimated the number of deaths and injuries that might be expected if an earthquake occurred when school was in session. These estimates were based on the expected performance of the buildings as determined in the previous seismic vulnerability study.

Local Seismicity

Salt Lake City is sited on the west face of the Wasatch Mountain Range in a valley that marks the transition zone from the mountain country on the east and the desert expanses to the west. A major earthquake fault parallels the west face of the Wasatch mountains and extends from Nephi on the south to the Idaho border on the north. The Wasatch fault is part of a larger system of faulting termed the Intermountain Seismic Zone.

The Wasatch fault has an approximate length of 238 miles and has been determined to consist of ten individual segments. Geologic trenching studies have determined that a segment of the fault has moved seventeen times during the last 6,000 years Based upon these studies, it has been determined that one of the individual segments of the fault will slip every 340 to 415 years with an average Richter magnitude of 7.2 to 7.5. The Wasatch fault represents the major source of potential ground shaking in the Salt Lake Valley but is not the only source. There are other fault systems in the valley and in