# INTEGRATING EARTHQUAKE CASUALTY AND LOSS ESTIMATION

Michael E. Durkin
Durkin & Associates
and
Dr. Charles Thiel
Engineering Consultant

## Introduction

This paper presents work in progress supported by the US Geological Survey We and our co-investigators have been engaged for the past year in developing earthquake casualty estimation procedures for a wide variety of potential applications This paper addresses the following three subject areas: 1) our initial research findings; 2) deficiencies in currently available data bases and estimation methods, and, 3) programmatic recommendations for future research and process development We describe our current research activities in the Appendix.

A scientifically based procedure for estimating earthquake casualties is potentially valuable to a variety of users - both public and private, including the health and design professions - in the following distinct avenues of primary, secondary, and tertiary injury prevention:

1. Preparedness and response planning for providing emergency medical services in the post-earthquake environment, encompassing both supply and demand issues. Supply issues include the availability of medical facilities (degree of damage) and the management of available personnel, medications and equipment in search and rescue and medical care delivery, while demand issues relate to where casualties occur and what are their requirements (extraction, transportation, mix of injury types, types of diagnostic and treatment equipment needed).
2. Pre-earthquake preparedness programs including information, education, and training, aimed at the general public and high risk populations to reduce their vulnerability when earthquakes occur.
3. Mitigation actions that can reduce the likelihood of casualties when earthquakes occur These are at two levels, those actions occupants can take to protect themselves from