

PREFACE

This manual is a major revision of the Federal Highway Administration publication *Seismic Retrofitting Guidelines for Highway Bridges* which was published in 1983 as Report FHWA/RD-83-007. This original publication was updated in 1994 and an interim revision published as Report FHWA-RD-94-052, *Seismic Retrofitting Manual for Highway Bridges* in May 1995. This current edition expands the coverage of the previous publications by including procedures for seismically-deficient retaining structures, slopes, tunnels, culverts, and roadways, in addition to bridges. It is published in two parts as follows:

Part I: Bridges

Part II: Retaining Structures, Slopes, Tunnels, Culverts, and Roadways

Whereas Part I maintains the basic format of the retrofitting process described in the 1983 Report, major changes have been made in this revision to include advances in earthquake engineering, field experience, and the performance of bridges in recent earthquakes in California and elsewhere.

Part 2 focuses on seismic vulnerability screening, evaluation and retrofitting of the following highway system components: retaining structures, slopes, tunnels, culverts, and roadways. It is the first known effort to capture, in a formal and consistent manner, the important aspects of seismic performance and retrofitting intended to improve performance of highway system structural components other than bridges.

It should be noted that this manual was developed while the Department of Transportation was transitioning to “metric” units. As a consequence, example problems are presented in SI units. However, since most States have switched back to U.S. customary units, the units will also be changed in a future edition.