



Report on
Costs and Benefits of
Natural Hazard Mitigation

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Federal Emergency Management Agency
Mitigation Directorate
500 C Street, SW
Washington, DC 20472

FOREWORD

Effective emergency management *response* to disaster events is crucial. It saves as many lives as can be saved, provides shelter to disaster victims, and diminishes the number of ancillary problems than can arise. Yet the central problem of disasters, the amount of losses, is not addressed by *response*. Many of these losses can be avoided through *mitigation*. We have always instinctively known that mitigation makes sense, saves money and ultimately saves lives. This report, "Costs and Benefits of Natural Hazard Mitigation," contains just a few examples of mitigation measures being used in today's cities and counties. Even though most of the measures were put in place after dramatic disaster experiences got people's attention, these examples show that it's in the best interest of everyone to take action before a disaster. Experience has shown us that lives can be saved and damage to property significantly reduced by consistently building safer and stronger buildings, enforcing building codes, and making the proper preparations before the disaster occurs.

These examples demonstrate that mitigation is a cost-effective means of limiting the damages that can result from natural hazards and the costs individuals, businesses, and governments must pay in recovering from these events. Besides reducing the direct costs associated with natural hazards, mitigation reduces important indirect costs, such as the disruption of daily routines, community services, commerce, and industry.

Local officials, individuals and businesses must work together to plan and prioritize mitigation actions that protect citizens, businesses, and public infrastructures before disasters strike. Pre-disaster mitigation is common sense preventive medicine. We at FEMA, together with our partners in the State and local governments agencies, stand committed to assist you in protecting your homes, communities, and loved ones from the traumatic reminders of nature's power.



James L. Witt, Director
Federal Emergency Management Agency

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Daniel J. Alesch, Ph.D., University of Wisconsin, Green Bay
David Bush, Ph.D., University of West Georgia
Hal Cochrane, Ph.D., Colorado State University
Brian Cowan, Federal Emergency Management Agency
Michael A. Cassaro, Ph.D., PE, University of Louisville
Mary C. Comerio, Ph.D., University of California, Berkley
Donna Erat, Federal Emergency Management Agency
Robert Hanson, Ph.D., University of Michigan
P. Michael Laub, Ph.D.
Margaret Lawless, Federal Emergency Management Agency
Michael F. Robinson, Federal Emergency Management Agency
Orrin H. Pilkey, Ph.D., Duke University
Robert Reitherman, CUREe
Paul Tertell, P.E., Federal Emergency Management Agency
Kathleen Tierney, Ph.D., University of Delaware
L. Thomas Tobin, Ph.D., Tobin & Associates
Ted VanKirk, P.E., Dewberry & Davis

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Executive Summary

Natural hazard mitigation is defined as a sustained action taken to reduce or eliminate the long-term risk to people and property from natural hazards and their effects. This report reviews the types of benefits that can accrue to different segments of society from mitigative measures, the types of costs that can be incurred by undertaking the actions, and the types of analyses needed to evaluate the cost-effectiveness associated with the mitigation measure. In addition, the report provides a review of the tools of hazard mitigation, to give the reader an understanding of how mitigation measures are implemented.

At the core of this report are 16 case studies of mitigation measures that were implemented in various locations across the nation. These cases demonstrate that mitigation is effective against several types of natural hazards and can be accomplished through the use of many different mitigation tools. The cases also illustrate that the various tools can be implemented in all major regions of the country. Further, since disasters impact the entire community, hazard mitigation relies on an investment from all sectors of the community, not just Federal, State, and local governments. An important theme that emerges from several of the cases is that mitigation is more effective when undertaken before the advent of a natural hazard. The cases demonstrate representative solutions for cost-effective hazard mitigation.

Each case study also uses photographs, graphic illustrations, and information boxes to highlight important findings. Although these tools assist in clearly conveying important points and add interest to each study, it is best to read the entire case study to get a thorough understanding of the tools and concepts of hazard mitigation, approaches to mitigation, and their applications.

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