National Institute of BUILDING SCIENCES

Mitigation Saves:

The Federal Treasury Saves $930 Million Per Year

Introduction

Natural hazards present significant risks to many communities across the United States. Fortunately, there are measures governments, building owners, developers, tenants, and others can take to reduce the impacts of such events. These measures—commonly called mitigation—can improve safety and prevent property loss and disruption of day-to-day life. The National Institute of Building Sciences Multihazard Mitigation Council undertook a multi-year study in 2017 to update and expand upon its *2005 Mitigation Saves* study on the value of mitigation. In the *Mitigation Saves: 2018 Interim Report,* the project team estimated benefit-cost ratios for four kinds of mitigation and five perils, as shown in Table 1.

National Benefit-Cost Ratio Per Peril *BCR numbers in this study have been rounded	Exceed common code requirements	Meet common code requirements	Utilities and transportation	Federally funded
Overall Hazard Benefit-Cost Ratio	4:1	11:1	4:1	6:1
Riverine Flood	5:1	6:1	8:1	7:1
Hurricane Surge	7:1	Not applicable	Not applicable	Too few grants
Wind	5:1	10:1	7:1	5:1
Earthquake	4:1	12:1	3:1	3:1
Wildland-Urban Interface Fire	4:1	Not applicable	Not applicable	3:1

Table 1. Benefit-cost ratio by hazard and mitigation measure.

- **Exceed common code requirements:** Most U.S. communities adopt recent editions of the *International Building Code* (IBC) and *International Residential Code* (IRC). Few adopt the *International Wildland-Urban Interface Code* (IWUIC). These codes set out minimum safety requirements, not maxima. Exceeding certain requirements of the commonly adopted codes and adopting the IWUIC can save $4 per $1 invested.
- **Meet common code requirements:** Modern building codes have improved society's disaster resilience to hurricanes, floods, and earthquakes (among other improvements), and they have developed over time. Compared with a generation ago, code development in these areas saves an estimated $11 per $1 invested.
- **Retrofit utilities and transportation infrastructure:** Society relies on roads, highways, railways, electricity, telecommunications, water, wastewater, and other lifelines. Retrofitting these facilities to better resist disasters saves society $4 per $1 invested.
- **Federal grants:** The impacts of 23 years of grants made by the Federal Emergency Management Agency (FEMA), Economic Development Administration (EDA), and the Department of Housing and Urban Development (HUD) result in a national benefit of $6 for every $1 invested.

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Savings to the Federal Treasury

The study estimated that the federal government spends an annual average of $10 billion on disasters through public assistance, individual assistance, and other costs. Natural hazard mitigation reduces those outlays by the federal government. The mitigation measures examined in the study are estimated to reduce annual federal expenditures by approximately 8%, meaning that natural hazard mitigation reduces federal outlays from the treasury by approximately $800 million per year. In addition, natural hazard mitigation increases federal tax revenues by approximately $130 annually because of fewer tax deductions for disaster losses. Thus, the mitigation measures examined here provide an annual benefit to the federal treasury of approximately $930 million, as detailed in Figure 1.

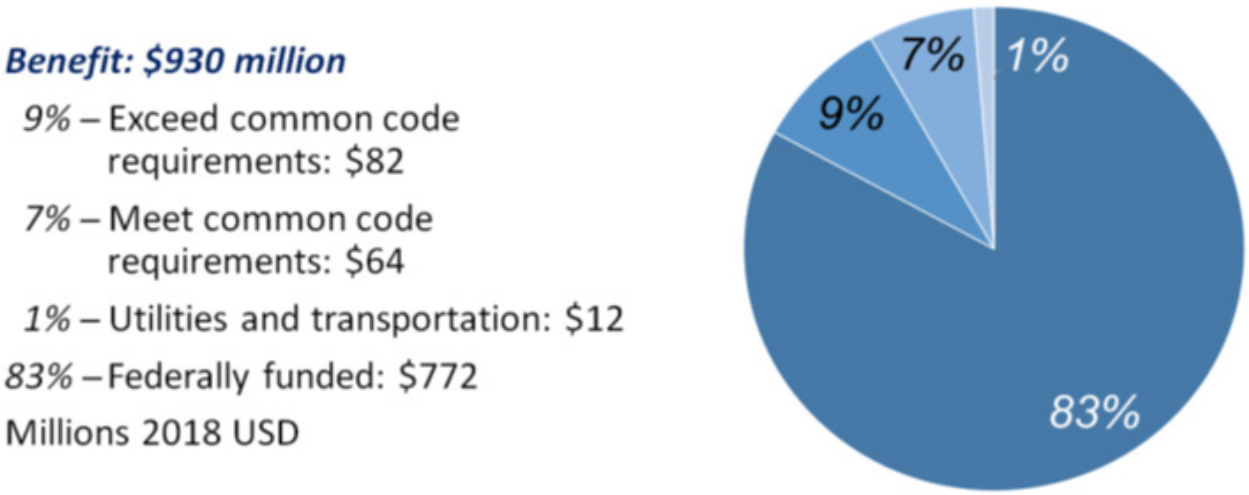

Figure 1. Annual savings to the federal treasury resulting from natural hazard mitigation.