

Study of the Economic Effects of Charging Actuarially Based Premium Rates for Pre-FIRM Structures

May 14, 1999
Executive Summary



The Effects of Subsidy Elimination on Flood Insurance Premiums

Executive Summary

1. Introduction

This report presents the results of a study on the economic effects of charging actuarially based premiums for pre-FIRM (Flood Insurance Rate Map) structures located in the nation's special flood hazard areas (SFHAs). The study was performed in response to Section 578 of the National Flood Insurance Reform Act of 1994, which required FEMA to "conduct a study of the economic effects that would result from increasing the premium rates for flood insurance coverage made available under the National Flood Insurance Program (NFIP) for pre-FIRM structures to the full actuarial risk based premium."

The effects covered in this study include:

- Which types of areas would experience a change in flood insurance rates
- The amount by which premiums would change
- The numbers and types of properties that would be affected
- The numbers and types of properties in which flood insurance coverage would be canceled in response to higher insurance rates
- The effects of the change in rates on property values and property taxes
- Other effects of the change in rates on homeowners, the economy, and certain government disaster programs

Because this study was started in 1996, the changes in premiums are assumed to occur in 1998 for analysis purposes. The results would generally apply to premium changes that were initiated in 1999 or later years as well.

The NFIP program was intended to: (1) better indemnify property owners from flood losses; (2) reduce future flood-related losses through community floodplain management measures; and (3) reduce future disaster assistance costs through insurance and floodplain management. However, increases in flood insurance premiums could result in fewer flood insurance policies being purchased, undermining the original intent of the program. These concerns need to be balanced against the value of charging full actuarial risk based premiums when considering any NFIP policy changes.

2. Summary of Study Findings

2.1 Total SFHA and Pre-FIRM SFHA Properties

In this study, 6.6 million total structures were estimated to lie in the nation's SFHAs in 1997. This structure count reflects an estimated 8 million housing units in the nation's SFHAs, about seven percent of the 111 million U.S. housing units in 1997. Over time, the number of SFHA structures is projected to increase at a rate of about one percent per year, reaching 8.7 million by 2022. Over this period, the number of pre-FIRM properties, estimated to be 4.3 million in 1997, is projected to decline at a rate of about one percent per year to 3.2 million in 2022. Pre-FIRM properties will therefore decrease from 64 percent of all SFHA properties in 1997 to 37 percent of all SFHA properties by 2022.

2.2 The Effects of Subsidy Elimination on Flood Insurance Premiums

This study found that flood insurance premiums would rise substantially for pre-FIRM SFHA structures exposed to considerable flood risk (e.g., those below the base flood elevation or BFE) as a result of subsidy elimination. If the majority of the premium subsidy was eliminated for these structures within a year, average premiums for residential properties exposed to considerable flood risk would likely increase from \$585 to about \$2,000 and remain in the \$1,800 to \$2,000 range over the next 25 years. If the subsidy was phased out over a 10 or 20 year period, premiums for these structures would increase from \$585 to about \$930 or \$690, respectively, within five years and to about \$1,860 within 25 years. Finally, if subsidy elimination occurred when ownership of insured properties changed, the average of the premiums for residential properties exposed to considerable flood risk would increase from \$585 to about \$970 in 2002 and about \$1,600 in 2022. In contrast, premiums for many pre-FIRM structures with low flood risks (e.g., those at or above the base flood elevation) would decrease somewhat since actuarial premiums for these structures are below subsidized premiums. Currently, only a limited number of policyholders with properties at or above the BFE have exercised their option to obtain actuarial rates, but under a scenario of subsidy elimination, it is assumed that all of these properties would become aware of this option and would begin paying the lower actuarial premiums.

2.3 The Effects of Subsidy Elimination on Flood Insurance Program Participation

This study projects the national participation rate (the proportion of structures with flood insurance) for all SFHA structures to grow from 28 percent in 1997 to 40 percent in 2022 in the absence of subsidy elimination. The total number of flood insurance policy contracts in SFHAs is likely to increase from 1.9 million in 1997 to 3.5 million in 2022, where a policy contract reflects one contract per structure (e.g., a single condominium structure with multiple housing units would have one master policy contract for all units). The national participation rate for all pre-FIRM structures in the SFHA in the absence of subsidy elimination is likely to increase from 26 percent in 1997 to about 38 percent in 2022; these participation rates reflect an increase of flood insurance policy contracts from 1.1 million in 1997 to 1.2 million in 2022.

If the subsidy was eliminated immediately, the participation rate for pre-FIRM structures in the SFHA would likely decrease from 26 percent in 1997 to 20 percent in 1998, then increase to about 29 percent in 2022. These levels of participation are significantly different than the participation rates of 27 percent in 1998 and 38 percent in 2022 projected in the absence of subsidy elimination. These decreases reflect the fact that approximately 280,000 flood insurance policy contracts, which would have been purchased without subsidy elimination in 2022, would not be purchased under an immediate subsidy elimination scenario. However, if the subsidy was phased out over time, the decrease in participation would not be as large.

2.4 Economic Impacts of Subsidy Elimination

At the national level, the impacts on pre-FIRM property values of eliminating flood insurance subsidies reflect premium changes for structures in the SFHA exposed to varying degrees of flood risk and expected losses. Overall, under a scenario of immediate subsidy elimination, property values for pre-FIRM single family structures in the SFHA below the BFE are estimated to decline by four percent in 1998, while those of multiple family structures are estimated to decline by seven percent in 1998. The higher property value declines associated with multiple family structures reflect the relatively higher concentrations of these structure types located in areas subject to coastal flooding.

The impacts on pre-FIRM property values of eliminating flood insurance subsidies vary considerably by community. In general, the most adversely affected NFIP communities are those with relatively high proportions of properties in the SFHA significantly below the BFE, which therefore incur the largest overall premium increases. For the NFIP communities with two-thirds or more of their SFHA properties *below* the BFE sampled for this study, average property values were estimated to decline nine percent in 1998 as a result of subsidy elimination. In these communities, premium increases for properties below the BFE would equal eight percent of median household income and would lead to an estimated 36 percent decline in the number of flood insurance policies purchased. In contrast, communities with a high proportion of their structures *at or above* the BFE were estimated to experience small property value *increases* as a result of subsidy elimination, since actuarial premiums for these structures are *less than* subsidized premiums. For the NFIP communities experiencing average net premium *decreases* sampled for this study, average property values were estimated to *increase* an average of 0.4 percent in 1998.

This study reviewed seven different policy scenarios for subsidy elimination. Analysis of the alternative policy scenarios indicates that the timing and determinants of subsidy elimination can significantly affect the estimated change in property values. Under a scenario with immediate subsidy elimination, property value declines are estimated to be 4 percent in 1998 for pre-FIRM single family structures in the SFHA below the BFE. However, under a scenario in which the subsidy is eliminated only when a property is sold or refinanced, the largest decrease in property values for single family structures below the BFE is only 2.3 percent.

3. Background

The National Flood Insurance Act of 1968, as amended, created the National Flood Insurance Program (NFIP). The NFIP is a cooperative venture involving the federal government, state and local governments, and the private insurance industry. The federal government sets insurance rates, provides the necessary risk studies to communities, and establishes floodplain management criteria guiding construction in the floodplain. Communities must adopt and enforce minimum floodplain management standards for new and substantially improved structures. Flood insurance is only available in those communities that enact and enforce these measures. Private insurance companies, under an arrangement known as the Write Your Own program, sell and service federal flood insurance policies and retain part of the premium for their efforts. In addition to the 1968 Act, Congress also passed the Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994 to strengthen the federal government's ability to require flood insurance purchases among Special Flood Hazard Area (SFHA) structures. These laws hold lenders (that are already subject to federal regulations) accountable for making sure that any SFHA structure they finance has adequate flood insurance coverage during the term of the loan.

The general principles upon which the NFIP was based are described in *Insurance and Other Programs for Financial Assistance to Flood Victims*, a report prepared by the Secretary of Housing and Urban Development in 1966 for the U.S. Senate Committee on Banking and Currency. The report cited two considerations that justified providing a general taxpayer subsidy for the flood insurance program. One, premiums had to be reasonable for people to buy the insurance. Existing construction could be so poorly situated that full risk premiums would be unaffordable. With insurance provided at subsidized rates, floodplain residents could make a contribution toward pre-funding their recovery from a flood disaster. Second, flood insurance had to be linked to floodplain management. The availability of reasonably priced flood insurance would be the *quid pro quo* for communities to adopt measures to ensure future reductions in flood losses.

In establishing the flood insurance program, Congress considered ways to equitably distribute the burdens between those who would be protected by flood insurance and the public. Subsidized flood insurance for existing properties in flood risk areas became an important element of the flood insurance program for the following reasons:

- Occupants did not understand the risk when they built in these areas since flood hazard maps were generally not available.
- There were no effective public safeguards against the occupancy of this land.
- Capital was sunk in these properties in flood risk areas, and the investment could only be salvaged by continued use.
- Subsidized flood insurance may prove to be less costly to the federal government than disaster relief.
- Subsidized insurance for these structures could provide an incentive for communities to adopt and enforce floodplain management that would reduce future flood losses.

The 1966 Report argued against subsidies for new construction because it was believed that subsidized insurance for new construction in flood hazard areas would encourage development of these areas. Structures built after the flood hazard was identified are considered post-FIRM and pay actuarial rates. In addition, property owners who build or substantially improve structures after the federal government has identified the risk are charged full actuarial rates. If a structure is substantially damaged or otherwise substantially improved once the risk is identified, it too will be actuarially rated based on its risk of flooding.

Premium subsidies were an interim solution to longer-term adjustments in land use. Clearly, the intent was to get residences out of floodplains, not to encourage people to continue to live there. The subsidy would allow reasonable premiums in the face of progressively greater flood risk so occupants would be willing to pay the cost of their flood insurance. Premium subsidies were never intended to be compensation for the higher level of risk inherent in these properties.

The authors of the original study thought that the passage of time, natural forces, and more stringent building codes would gradually eliminate the subsidized structures over time. Currently, about 30 percent of NFIP policies are subsidized. This compares with about 70 percent of the policies being subsidized in 1978. Though modern construction and renovation techniques have extended the useful lives of buildings, other factors have intervened to help reduce the number of properties eligible for subsidized rates. The decrease in pre-FIRM structures has been attributed to a number of factors. They include flood control projects that have removed property from the floodplain; the acquisition of flood damaged properties under Section 1362 of the 1968 Act; the Hazard Mitigation Grant Program authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, as amended, and other acquisition and retrofitting programs; the NFIP floodplain management regulations that require substantially improved or substantially damaged existing buildings to be elevated or otherwise protected; redevelopment; natural attrition; and severe floods.

The Flood Disaster Protection Act of 1973 extended the NFIP's authority to grant premium subsidies as an additional incentive to encourage the purchase of flood insurance. The 1973 law also required the purchase of flood insurance as a condition of eligibility for direct federal and federally related financial assistance to acquire or construct improved real property in flood hazard areas. This linking of flood insurance to federal assistance was done because the voluntary purchase of flood insurance was not occurring as was originally hoped.

During the 1970s premiums were heavily subsidized. The availability of subsidized flood insurance and limitations on federal assistance for nonparticipating communities resulted in nearly all floodprone

communities joining the program. The insurance policy count increased dramatically, reaching two million by 1979. States established floodplain management coordinators to provide technical assistance to communities in administering the NFIP at the local level. In 1981, with the flood program firmly established, FEMA began to initiate rating and coverage changes. The changes that took place through the mid-1980s made the program self-supporting for the historic average loss year and significantly reduced the subsidy. These changes were approved by the Congress and took into account the need to increase the number of flood insurance policies.

There is extreme variation in the flood risk among pre-FIRM buildings. Many structures flood during the 100-year flood, or lesser events, and others are surrounded by floodwaters or have floodwaters in contact with their foundations. As of 1997, there were 76,000 buildings that had two or more flood losses in any ten-year period since 1978. They have accounted for a disproportionate share of the program's total losses and have continued to qualify for subsidized rates because their damage did not exceed 50 percent of their value in a single loss. These repetitive loss buildings account for one-third of all losses paid.

The National Flood Insurance Reform Act of 1994 includes two provisions intended to mitigate losses to substantially damaged and repetitive loss buildings. The first is Increased Cost of Compliance insurance coverage that pays up to \$15,000 of the cost of bringing a substantially damaged or repetitive loss building into compliance with a community's floodplain management ordinances. The second is the Flood Mitigation Assistance Program that provides \$20 million a year in funding to states and communities to support mitigation actions to protect insured buildings. These measures are intended to accelerate the process of reducing the subsidy on these properties. In addition, the Hazard Mitigation Grant Program provided by Section 404 of the recently expanded Stafford Act makes funds available to mitigate flood risks through acquisition, relocation or elevation of structures.

Congress' concern for the fiscal soundness of the program is reflected in the National Flood Insurance Reform Act of 1994. First, the legislation seeks to increase market penetration and spread the risk through the lender compliance requirements. Second, the legislation provides a way to mitigate the worst risks through mitigation insurance and the mitigation assistance program. Lastly, it recognizes the need to lower significantly and eventually eliminate the subsidy and allows rate increases of up to ten percent per year for any risk classification. The law also required this study of the economic effects of increasing subsidized rates.

According to estimates developed for this study, there are 6.6 million structures located in SFHAs identified on the Flood Insurance Rate Maps (FIRMs). These 6.6 million structures include 6.2 million residential structures (representing about 8 million housing units) and 0.4 million non-residential structures:

- 2.3 million of the SFHA structures were built after issuance of a community's initial FIRM, i.e., post-FIRM. Generally these structures were built in compliance with community floodplain management regulations and should sustain minimal damage during a 100-year flood.
- 4.3 million SFHA structures were built prior to the issuance of a community's FIRM and the adoption of floodplain management regulations. These pre-FIRM structures have varying degrees of risk.
 - 2.3 million of the pre-FIRM structures have their lowest floors below the base flood elevation. These structures will flood during a 100-year flood, and many will flood during lesser events.
 - 1.0 million of the pre-FIRM structures have their lowest floors at or above the base flood elevation but have their lowest adjacent grade below that elevation. During a 100-year flood,

these structures will be surrounded by floodwaters or at least have floodwaters in contact with their foundations. The foundations of these structures may or may not be adequate to withstand flood forces such as high velocity floodwaters, wave impacts, and hydrostatic pressure.

- 1.0 million of the pre-FIRM structures have their lowest floors and lowest adjacent grades above the base flood elevation. Some of these structures are built on the edge of the floodplain on naturally high ground and may not be impacted by a 100-year flood. Others are built on small areas of natural high ground or on small fill pads graded to ensure positive drainage away from the structure. These structures will be surrounded by floodwaters but may not be flooded during a 100-year flood. However, some of these structures have basements that could be subject to damage from hydrostatic pressure from groundwater. All of these 1.0 million structures are at risk from floods greater than the 100-year flood.

The 6.6 million include only those structures located in SFHAs designated by FEMA and are not the total universe of structures at risk. There are floods greater than the 100-year base flood that is used to designate the SFHAs. These floods will damage structures outside of the SFHA. In addition, FEMA has generally designated floodplains only along major flooding sources such as rivers, streams, lakes, and tidal waters. Generally, streams with very small watersheds are not studied nor are areas subject to flooding from localized drainage problems or urban stormwater. These areas outside of the SFHA account for 23 percent of all NFIP claim dollars paid from 1978 to 1996.

In addition to areas located outside of SFHAs, this study excluded about 1,700 NFIP communities with SFHAs, many outside of the territorial limits of the United States. Most of the community exclusions were due to mapping limitations and limitations with the Census data, which do not provide detailed information for outlying U.S. territories. Although precise estimation is difficult, it is believed that these excluded communities account for less than two percent of the total number of SFHA structures, and their exclusion does not have a significant impact on the analysis or results of this study.

3.1 Subsidy Elimination Scenarios

FEMA specified seven subsidy elimination scenarios for consideration when investigating the effects of a move from subsidized to actuarial premiums. These scenarios involve various combinations of eliminating the premium subsidy and decreasing the coverage provided by NFIP policies. The scenarios do not necessarily represent policies that the NFIP is considering implementing, but illustrate how different potential policy mechanisms can affect the timing and the magnitude of property value changes.

Pre-FIRM structures that are at or above the BFE can obtain elevation certificates verifying their BFE, and, thus, become eligible for actuarial premiums that are lower than subsidized premiums. Structures that have obtained these elevation certificates are said to be “elevation rated.” Owners can elect to have their structures elevation rated at any time. However, for one reason or another, many owners have not historically exercised this option. For all scenarios, pre-FIRM structures that are not elevation rated in 1997 and have an actuarial premium lower than the subsidized premium are assumed to become elevation rated in 1998 and immediately begin paying this lower actuarial premium.

The scenarios are as follows:

- *Baseline.* This scenario serves as a point of comparison for the seven subsidy elimination scenarios. All participating structures continue paying the current premium and have the same insurance coverage for the entire period from 1997 to 2022. Pre-FIRM structures that are not elevation rated

pay the subsidized premium for all 25 years. Pre-FIRM structures that are elevation rated and post-FIRM structures pay the actuarial premium for all 25 years.

- *Scenario 1.* This scenario eliminates the premium subsidy through an immediate premium change in 1998. For structures with a lower actuarial premium, the premium will decrease to the actuarial premium in 1998. For structures with a higher actuarial premium, the premium will increase to the actuarial premium in 1998.
- *Scenario 2.* This scenario eliminates the premium subsidy gradually over a period of 10 years. For structures with a lower actuarial premium, the premium will decrease to the actuarial premium in 1998. For structures with a higher actuarial premium, the premium will increase steadily with an equal annual percentage growth rate for each of the 10 years from 1998 to 2007. At the end of this 10-year period, the premium will reach and remain at the actuarial rate.
- *Scenario 3.* This scenario is similar to Scenario 2 except that the premium subsidy is eliminated gradually over a period of 20 years from 1998 to 2017. At the end of this 20-year period, the premium will reach and remain at the actuarial rate.
- *Scenario 4.* This scenario eliminates the premium subsidy when ownership of the structure changes or the structure is refinanced. For structures with a lower actuarial premium, the premium will decrease to the actuarial premium in 1998. For structures with a higher actuarial premium, the premium will increase to the actuarial premium when the structure is sold or refinanced.
- *Scenario 5.* This scenario eliminates the premium subsidy with a combination of deductible increases and premium changes. For structures with a lower actuarial premium, the premium will decrease to the actuarial premium in 1998. For structures with a higher actuarial premium, the increase in deductible takes place immediately upon renewal. The deductible increases from the current \$1,500 total to 15 percent of total insurance coverage. The premium change component eliminates any subsidy remaining after the deductible increase over five years with an equal annual percentage growth rate for each of the five years from 1998 to 2002.
- *Scenario 6.* This scenario is similar to Scenario 5 except that the deductible increases to only three, rather than 15, percent of total insurance coverage.
- *Scenario 7.* This scenario eliminates the premium subsidy with a combination of a coverage change and premium changes. For structures with a lower actuarial premium, the premium will decrease to the actuarial premium in 1998. For structures with a higher actuarial premium, the coverage change takes place immediately upon renewal. If a structure is damaged by a flood, the NFIP will only pay for builders grade materials and materials to make the structure habitable. The premium change component eliminates any subsidy remaining after the coverage change over five years with an equal annual percentage growth rate for each of the five years from 1998 to 2002.

3.2 Major Assumptions for Study Approach

This study required the collection, development, and analysis of large amounts of data to analyze complex policy issues. As with any such study, certain key assumptions were made. Five of the most important assumptions are presented below:

Actuarial rates selected for pre-FIRM properties reasonably reflect the risk currently and over the next 25 years – Rates were provided by FEMA for estimating the actuarial premiums for pre-FIRM structures. These included rates computed specifically for this study using the NFIP’s current actuarial rate methodology and rates culled from existing rate tables in the NFIP agents’ manual and underwriting guidelines used to rate post-FIRM buildings below the BFE. Although simplified, the selected actuarial rates are assumed to be accurate enough to reasonably assess the economic effects of the premium changes.

Current flood risk delineations reasonably portray the flood risk over the next 25 years – The current BFE and flood risk zones depicted on NFIP Flood Insurance Rate Maps are assumed to remain accurate over the next 25 years. Projections of future delineations, based on either actual risk changes due to future floodplain conditions or advances in flood study technology, were not incorporated into this analysis.

Actuarial premiums for pre-FIRM structures will be based on elevation certificates – It is assumed that all pre-FIRM structures without elevation certificates would obtain elevation certificates so that actuarial premiums can be calculated. The cost of obtaining these elevation certificates is not included in this study.

No significant changes in flood-related policies – It is assumed that there are no significant changes in federal and state government policies with respect to disaster assistance, flood mitigation, and related programs over the next 25 years.

Price elasticities – The price elasticities used in the study are based on data cited in a General Accounting Office (GAO) study. The changes in participation rates in the NFIP under premium subsidy elimination are driven by the price elasticity assumptions. Despite various efforts to obtain robust and detailed price elasticities, only the GAO study was identified, and this source did not fully address price elasticities under the conditions of large premium changes. Since this assumption is critical to estimating the demand for flood insurance under potential changes in the premium subsidy, new research in estimating the price elasticity for flood insurance is recommended but was beyond the scope of this study.

3.3 Sample Communities for Analysis

Since there were 15,461 NFIP communities covered by this study, a sample of communities representative of the nation’s NFIP communities was selected, so that detailed analysis of the sample communities could be extrapolated and generalized to the national universe of NFIP study communities. The sample was based on the range of flood risk and economic and demographic characteristics observed in the universe of NFIP study communities. To balance the desirability of having numerous sample communities against the cost of obtaining detailed information on the numbers and characteristics of structures in each selected sample community, 50 sample communities were selected for detailed analysis. The detailed results from the community level were then extrapolated to the national level. Throughout this report, results for the sample communities are presented along with national results to highlight the range of potential impacts resulting from eliminating the NFIP flood insurance subsidy. While the national results presented in this study are more statistically robust and subject to smaller measurement errors than those for individual communities, the sample community results are provided to show the variation in economic effects that can occur across different areas with structures exposed to different levels of flood risk.

4. The Effects of Subsidy Elimination on Flood Insurance Premiums

4.1 Estimating Premium Changes

Structures *below* the base flood elevation (BFE) typically experience *increases* in premium rates when shifting from subsidized to actuarial premiums, while structures *at or above* the BFE typically experience *decreases* in premium rates. In selecting the actuarial rates for pre-FIRM structures, current restrictions on coverage in basements for finishings and contents were assumed to continue.

Structures with low risk and low expected losses can have subsidized premiums that are higher than the actuarial premiums. Currently, these structures are only eligible for actuarial premiums if an elevation certificate is obtained. Many have done so, but there are significant numbers of these pre-FIRM structures with low risk that have not yet been elevation rated. A general assumption in this study is that all pre-FIRM structures will obtain elevation certificates under the seven scenarios; thus, these structures with low risk will generally experience a premium decrease.

It should be noted that premiums in this study were computed on a structure (i.e., policy contract) basis and not on a policyholder basis. The difference is that the NFIP, in presenting program statistics and average premiums, usually counts units under the Condominium Master Policies as separate policyholders. Thus, there are more policyholders than policy contracts.

4.2 National Level Results

At the national level, there are considerable differences in the magnitude of premium changes based on differences in relative flood risk. As measured by a structure's elevation difference (the number of feet in relation to the BFE), exposure to different levels of flood risk results in considerably different actuarial premium levels. For this study, pre-FIRM SFHA properties were classified according to one of four levels of flood risk determined by the structure's elevation difference: 0 and above (at or above the BFE); -1 and -2 (one to two feet below the BFE); -3, -4, and -5 (three to five feet below the BFE); and -6 and below (six or more feet below the BFE). Of the 4.3 million pre-FIRM SFHA structures estimated nationally in this study, about 1.9 million structures were determined to have an elevation difference of 0 and above, about 1.3 million structures were determined to have an elevation difference of -1 and -2, about 520,000 structures were determined to have an elevation difference of -3, -4 and -5, and about 550,000 structures were determined to have an elevation difference of -6 and below in 1997.

Figure ES.1 shows the subsidized premiums and actuarial premiums for Scenario 1 (immediate subsidy elimination) for 1998 for all pre-FIRM SFHA structures nationally by the four elevation difference categories. The magnitude of premium changes between subsidized and actuarial rates vary considerably by elevation difference, with structures at lower elevations experiencing larger absolute changes as premiums shift from subsidized to actuarial. For structures one to two feet below the BFE, premiums would likely rise from about \$580 to about \$835 as a result of subsidy elimination. For structures three to five feet below the BFE, premiums would likely rise from about \$590 to about \$2,100 as a result of subsidy elimination. For structures six feet or more below the BFE, premiums would likely rise from about \$590 to about \$6,800 as a result of subsidy elimination. For structures at or above the BFE, premiums would likely decrease from about \$580 to about \$260 in 1998. These decreases reflect the fact that for structures at or above the BFE, subsidized premiums are typically *greater than* actuarial premiums.

Figure ES.2 presents average annual premiums for residential SFHA pre-FIRM properties at or above the BFE and below the BFE over the 1997 to 2022 period for the nation for the seven policy scenarios. For structures at or above the BFE, the resulting premium changes are averaged across all seven scenarios since these structures experience immediate premium decreases in all policy scenarios. While the pattern of premium changes differ considerably over time by policy scenario, a number of key results are noteworthy:

- For most communities and property types, premium increases are largest for Scenario 1, followed closely by Scenarios 5, 6, and 7, which share similar sized premium increases. The closeness among premium changes for these scenarios reflects the fact that Scenarios 1, 5, 6, and 7 are similar in that the majority of the premium subsidy is eliminated in 1998, with any remaining premium subsidy fully phased out by 2002. In these four scenarios, average premiums for residential properties below the BFE increase from about \$590 in 1997 to about \$2000 in 1998 and then show a slight downward trend (reflecting the relatively high attrition of the most flood-prone properties over time) to about \$1,800 by 2022.
- Scenarios 2 and 3 experience the smallest premium increases for most communities and property types. In these scenarios, the smaller increases in premiums reflect the gradual nature of subsidy elimination. For residential properties below the BFE, premiums would likely shift from about \$590 in 1997 to about \$930 in 2002 for Scenario 2 and about \$690 in 2002 for Scenario 3, and about \$1,860 for both scenarios in 2022.
- In Scenario 4 (subsidy elimination upon ownership change), the average of the premiums for residential properties below the BFE shifts from about \$590 in 1997 to about \$970 in 2002 and about \$1,600 in 2022. By 2022, the reported average of the premiums reflects that about 80 percent of properties have either been refinanced or sold.
- For structures at or above the BFE in all of the seven policy scenarios, average premiums for residential structures decrease from about \$580 in 1997 to about \$260 in 1998 and remain at about \$260 throughout the remainder of the projection period.

4.3 Community Level Results

There are considerable variations in the magnitude and direction of premium changes for the 50 sample communities included in this study. These variations are based on differences in relative flood risk. Using results from Scenario 1, in which the subsidy is fully eliminated in 1998, these wide variations are readily apparent:

- Three communities experience a \$4,000 or greater increase in residential premiums per property, with one community experiencing a roughly \$6,700 increase in residential premiums per property from about \$800 in 1997 to about \$7,500 in 1998.
- Eighteen communities experience an increase in residential premiums per property between \$1,000 and \$4,000 in 1998. For these eighteen communities, average residential premiums per property increase from about \$550 in 1997 to about \$2,350 in 1998.

Figure ES.1

Scenario 1: 1998 Average Premiums for Pre-FIRM Residential Properties All NFIP Study Communities

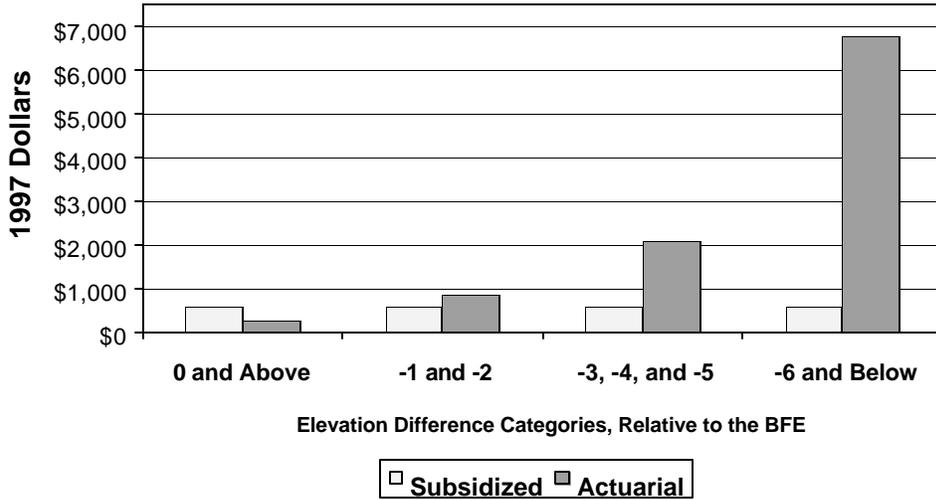
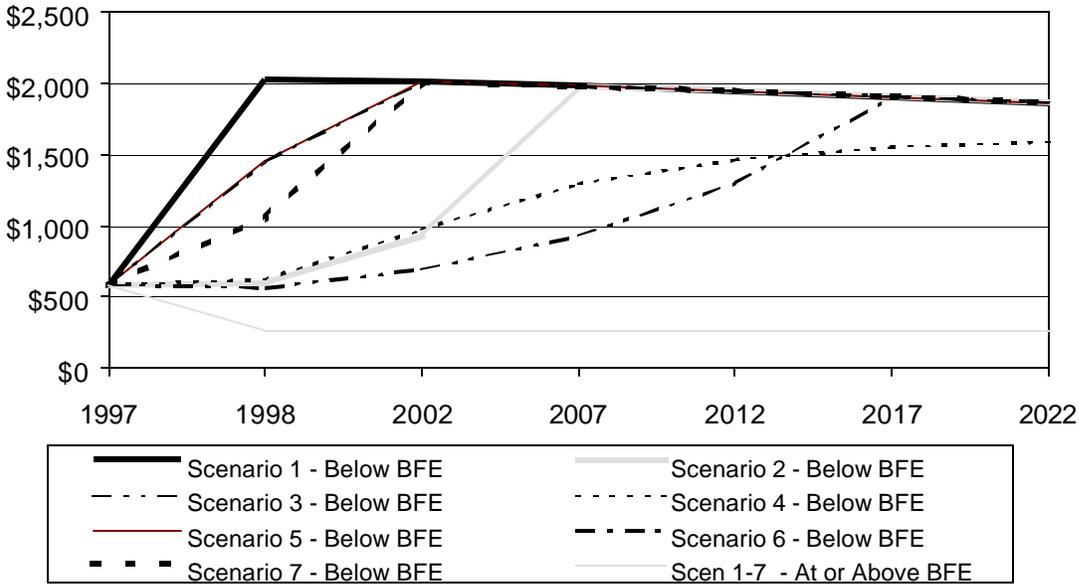


Figure ES.2

Premiums for all SFHA Pre-FIRM Residential Structures, 1997-2022

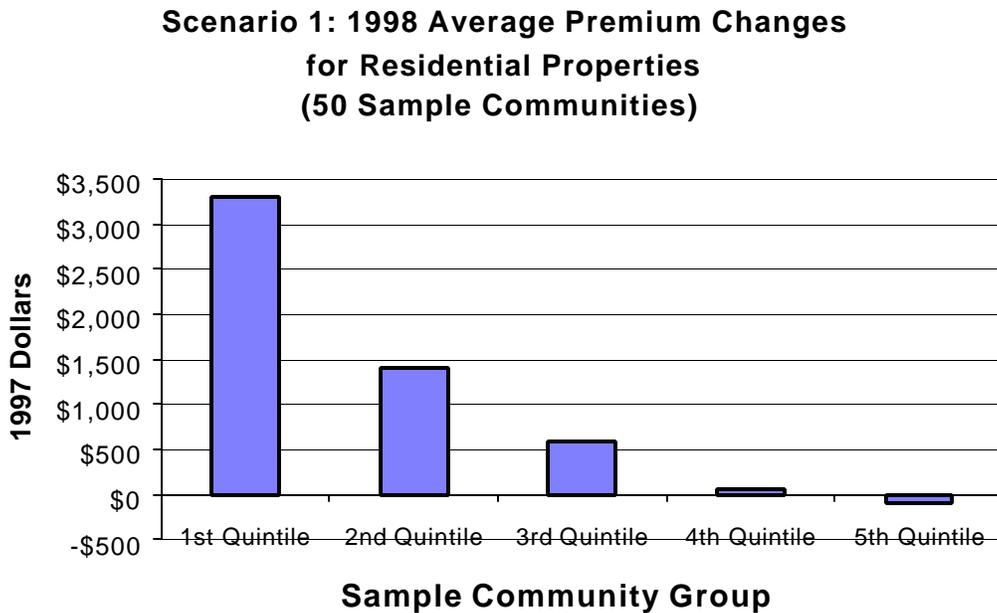


- Twelve communities experience a net *decrease* in residential premiums per property, although these net decreases are relatively small. The largest decrease for any community is about \$200 (from about \$1,030 in 1997 to about \$830 in 1998), and only four communities experienced premium decreases of \$100 or more per residential property.

Figure ES.3 presents average premium changes under a scenario of immediate subsidy elimination for residential structures in the 50 sample communities, grouped in quintiles according to the magnitude and direction of premium changes in 1998, ranked from largest premium increase to largest premium decrease.

As Figure ES.3 shows, the 10 communities with the largest premium increases experience a \$3,300 increase in average premiums (from about \$670 to about \$4,000) as a result of subsidy elimination. The next three groups of ten communities (quintiles 2 through 4) experience progressively smaller premium increases as a result of subsidy elimination, while the 10 communities represented in the fifth quintile experience an average *decrease* in premiums of about \$90 (from about \$550 to about \$460) as a result of subsidy elimination.

Figure ES.3



5. The Effects of Subsidy Elimination on Flood Insurance Program Participation

Changes in premiums have a direct effect on the number of flood insurance policies sold. A premium decrease will result in increased flood insurance purchases and higher retention rates among current policyholders, and a premium increase will result in lower policy purchases and lower retention rates. Changes in the purchases of flood insurance policies are measured by participation rates—the percentage of all SFHA structures that have flood insurance policies.

The factors that influence the decision to purchase flood insurance include:

- The price of flood insurance (i.e., the premium)
- Federal regulations and their effectiveness
- Flood events
- Historical trends in policy purchases
- The marketing of flood insurance

5.1 National Level Results

Figure ES.4 shows the estimated national participation rates for all structures in the SFHA for the Baseline and the seven scenarios. Figure ES.5 shows comparable information for only the pre-FIRM

Figure ES.4
National Participation Rates for all SFHA Structures for the Baseline and All Scenarios

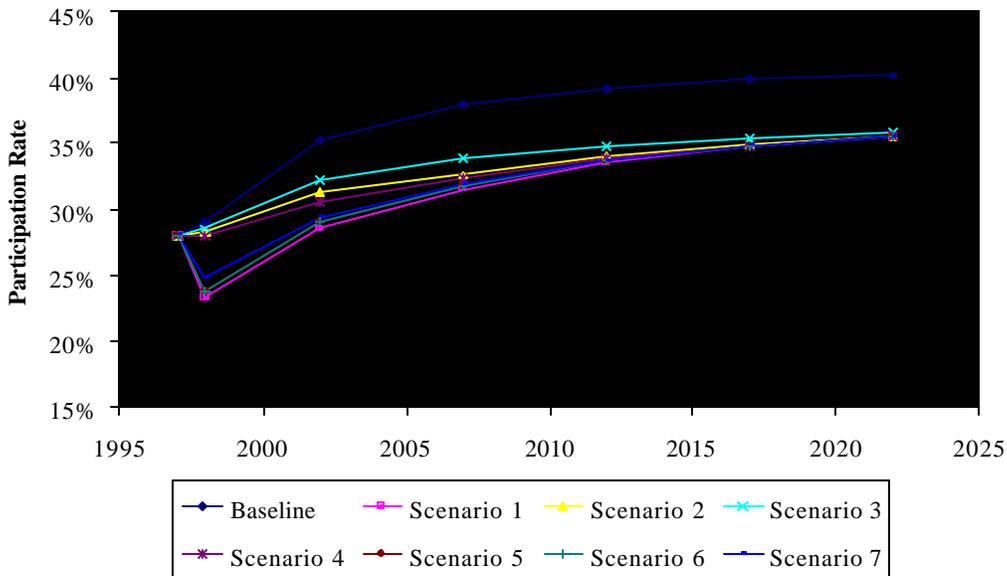
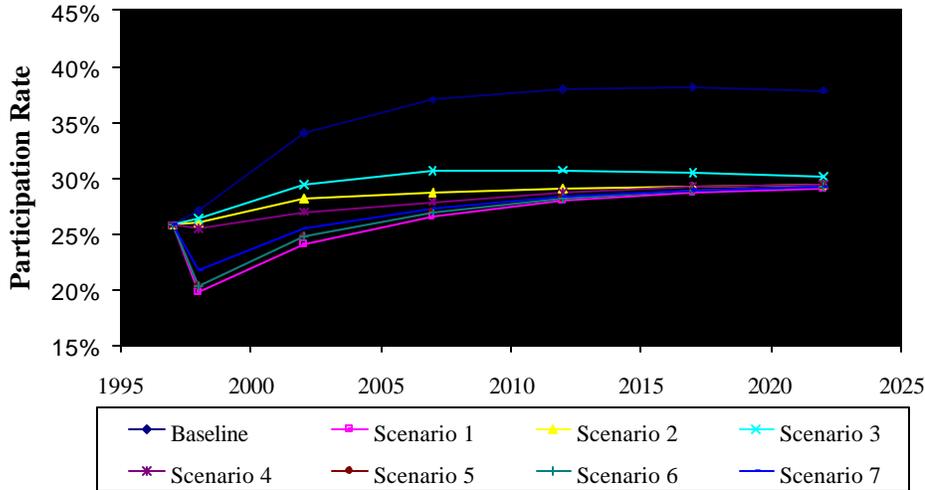


Figure ES.5

National Participation Rates for Pre-FIRM Structures for the Baseline and All Scenarios



structures in the SFHA. The Baseline reflects the expected trend in participation rates with no changes in the flood insurance subsidies. The national participation rate for all SFHA structures grows from 28 percent in 1997 to 40 percent in 2022 in the Baseline. The growth in policy contracts sold for these structures is fastest from 1998 to 2002, when the participation rate increases to 35 percent. After 2002, growth begins to slow and flattens out by 2017. The growth trend in the pre-FIRM structures is similar, although the participation rates are generally one to two percent lower.

The growth in the participation rate in the Baseline is attributable to various factors. Increased compliance with the Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994 are significant factors. These laws hold those lenders that are already subject to federal regulations accountable for making sure that any SFHA structure financed by the lender has adequate flood insurance coverage during the term of the loan. As property ownership changes over time, borrowers are subject to the improved enforcement of the mandatory purchase requirements by lenders. The Federal Insurance Administration’s marketing campaign Cover America has also helped in attracting new policyholders and increasing retention rates. The campaign was designed to raise awareness of flood risks and provide information on how to purchase flood insurance.

In the Baseline, participation rates for the pre-FIRM structures that are at or above the BFE increase from 26 percent in 1997 to 30 percent in 2002. Thereafter, growth continues but at a slower rate, reaching 33 percent in 2022. Participation rates for pre-FIRM structures that are below the BFE increase significantly in the Baseline from 26 percent in 1997 to 37 percent by 2002 and reach 44 percent by 2022. Growth for these pre-FIRM structures is a function of increased MPR compliance by lenders. Since these structures are at greater risk than structures at or above the BFE, and have higher expected losses, lenders are especially likely to protect their investments by enforcing the MPR.

In the Baseline, the number of policy contracts in the SFHAs increases from 1.9 million in 1997 to 3.5 million in 2022. The national participation rate for all pre-FIRM structures in the SFHA in the Baseline

increases from 26 percent in 1997 to 38 percent in 2022; these participation rates reflect an increase in the number of flood insurance policy contracts from 1.1 million in 1997 to 1.2 million in 2022.

Participation rates for pre-FIRM structures drop significantly under the various policy scenarios relative to the Baseline scenario because these structures are affected by the subsidy elimination scenarios. In contrast, post-FIRM structures are not subsidized; thus, there is no change in their participation rates between the Baseline and any of the subsidy elimination scenarios.

In Scenario 1, the participation rate for pre-FIRM structures in the SFHA drops significantly from 26 percent in 1997 to 20 percent in 1998. However, the participation rate then increases to 24 percent by 2002. Thereafter, growth is slow and reaches 29 percent in 2022, significantly less than the Baseline rate of 38 percent in 2022. This lower participation rate reflects the fact that approximately 280,000 flood insurance policy contracts, which would have been purchased in the Baseline in 2022, would not be purchased under Scenario 1 because of higher premiums.

Participation rates for pre-FIRM structures below the BFE drop in Scenario 1 from 26 percent in 1997 to 14 percent in 1998 reflecting the large premium increases for these structures. Beyond 1998, the participation rates increase to 18 percent in 2002 and to 24 percent by 2022.

For pre-FIRM structures at or above the BFE, participation increases from 26 percent in 1997 to 27 percent in 1998. By 2002, these structures have a participation rate of 30 percent, which then grows to 33 percent by 2022. Because these structures account for a significant portion of the pre-FIRM structures, trends in their purchasing behavior have a significant impact on the overall participation rates for pre-FIRM structures.

The participation rates for Scenarios 2 through 7 are initially reduced less than those for Scenario 1, but the participation rates for all of the scenarios reach a similar level by 2022 because premiums reach similar levels.

5.2 Community Level Results

At the community level, participation rates vary significantly from the national rates. While participation rates from 1997 to 2022 for the national population of pre-FIRM structures for the Baseline increase by 12 percentage points (from 26 percent to 38 percent), the changes in participation rates at the community level range from -8 percentage points to +36 percentage points. In Scenario 1, with immediate subsidy elimination, the increase in the national pre-FIRM participation rate is 3 percentage points. At the community level, changes in the participation rates for Scenario 1 range from -20 percentage points to +29 percentage points. These differences are the result of the significant variation in the risk profiles and expected losses across communities. Communities with a significant proportion of pre-FIRM structures below the BFE encounter large participation rate decreases. Conversely, communities with a significant proportion of structures at or above the BFE experience increases in participation.

6. Total SFHA and Pre-FIRM SFHA Properties

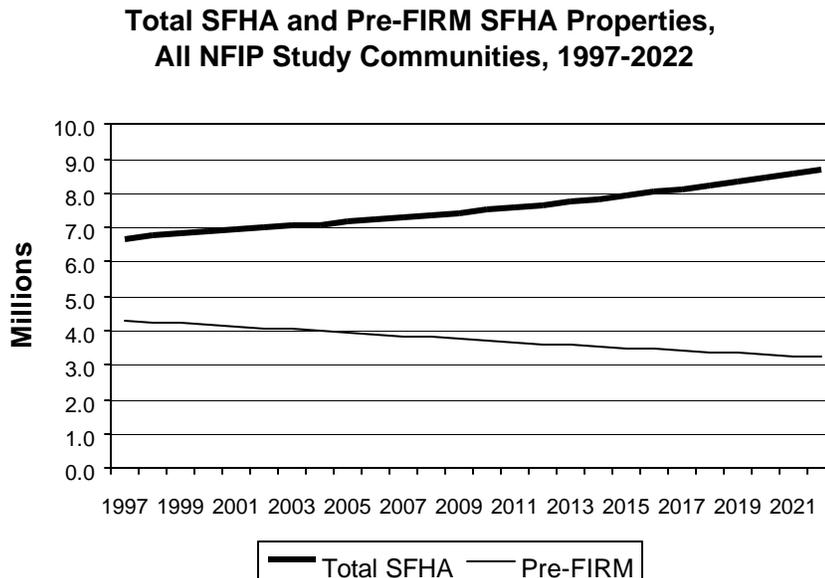
Projections of the number of SFHA properties were developed in this study to evaluate how changes in the stock of structures will affect the universe of properties eligible for subsidized flood insurance. These projections begin with the current universe of residential and non-residential SFHA properties and use projections of future property removal rates, property growth rates, flood frequency rates, acquisition rates, flood damage rates, and flood mitigation fund allocations to project the universe of SFHA properties 25 years into the future. Each of the 50 sampled NFIP communities was modeled individually to track changes in the stock and composition of pre-FIRM and post-FIRM structures.

6.1 National Level Results

Figure ES.6 summarizes results from the property projections at the national level for the Baseline scenario. Since the property projections for the seven policy scenarios are very similar to those in the Baseline, these results are not shown in Figure ES.6.

Over the 1997 to 2022 period, the number of total SFHA structures increases from 6.6 million in 1997 to 8.7 million in 2022, an annual average increase of about one percent. The number of pre-FIRM structures declines from about 4.3 million in 1997 to about 3.2 million in 2022, an annual average decline of about one percent. Pre-FIRM properties therefore decrease from 64 percent of all SFHA properties in 1997 to 37 percent of all SFHA properties by 2022.

Figure ES.6



While the total number of pre-FIRM SFHA structures estimated nationally in this study is projected to decline by about one percent a year (for a total reduction of 1.1 million structures) over the 1997 to 2022 period, rates of pre-FIRM structure attrition vary considerably by the flood risk. Since federal, state, and local flood mitigation programs target those structures with the greatest flood risks, pre-FIRM structures

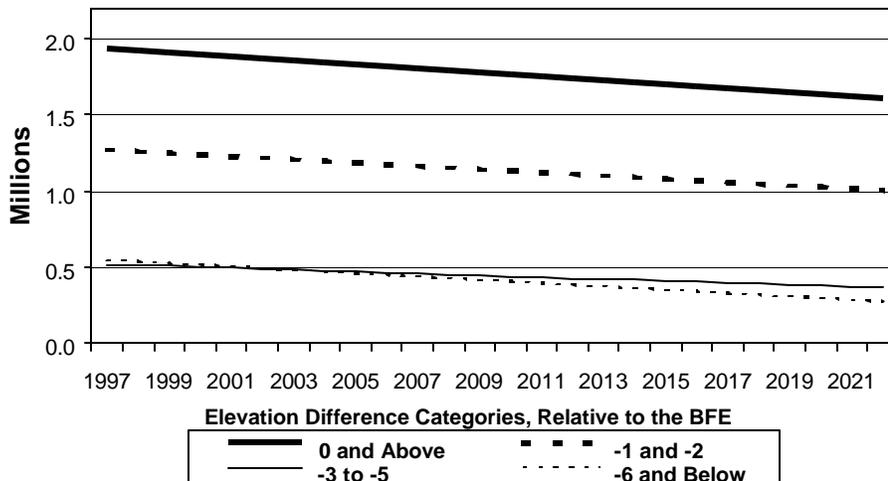
exposed to relatively high flood risk will undergo more rapid attrition than less flood prone pre-FIRM structures.

For this study, pre-FIRM SFHA properties were classified according to one of four levels of flood risk as determined by the structure’s elevation difference: 0 and above (at or above the BFE); -1 and -2 (one to two feet below the BFE); -3, -4, and -5 (three to five feet below the BFE); and -6 and below (six or more feet below the BFE). Figure ES.7 summarizes results from the property projections at the national level for the Baseline scenario for the four elevation difference categories. Since the property projections for the seven policy scenarios are very similar to those in the Baseline, these results are not shown in Figure ES.7

Over the 1997 to 2022 period, the number of pre-FIRM SFHA structures at or above the BFE is likely to decrease from about 1.9 million structures to about 1.6 million structures, a total decline of about 17 percent over this period. For similar structures one to two feet below the BFE, the number of structures is likely to decline from about 1.3 million in 1997 to about 1.0 million in 2022, a total decrease of about 21 percent. Similarly, for structures three to five feet below the BFE, the number of structures is likely to decline from about 520,000 in 1998 to about 370,000 in 2022, a total decline of about 29 percent. Finally, for pre-FIRM SFHA structures six feet or more below the BFE, the number of structures is likely to decline from about 550,000 structures in 1997 to about 270,000 in 2022, a total decline of about 50 percent.

Figure ES.7

**Pre-FIRM SFHA Properties
by Elevation Difference Category
All NFIP Study Communities, 1997-2022**



The attrition of the 1.1 million pre-FIRM structures projected to be removed from the nation's stock of structures over the 1997 to 2022 period occurs for a variety of reasons including non-flood removals and removals related to floods and various flood mitigation and control programs. Table ES.1 shows the removal of pre-FIRM structures over the 1997 to 2022 period broken down by type of removal. Note that about 64 percent of the total pre-FIRM removals are non-flood related, while the remaining 36 percent of removals are tied to flood-related mitigation and control programs. In general, pre-FIRM structures exposed to the greatest flood risks experience the most rapid attrition, since these structures are subjected to the greatest flood related damage and are targeted for flood mitigation and control programs.

Table ES.1
Pre-FIRM SFHA Structure Removals, 1997-2022
Universe of 15,461 Study NFIP Communities

Line	Structure Removal Categories	1997-2022	1997-2022	1997-2022
		Total Change	Average Annual Change	% Removal of pre-FIRM Structures
1	Non-flood removals	726,833	29,073	16.8
2	+ Structural Mitigation	303,241	12,130	7.0
3	+ Post-disaster non-structural mitigation	78,975	3,159	1.8
4	+ Pre-disaster non-structural mitigation	27,519	1,101	0.6
5	= Total pre-FIRM removals	1,136,568	44,463	26.3
6	1997 Pre-FIRM SFHA structures	4,294,673		
7	- Total pre-FIRM removals	1,136,568		
8	= 2022 pre-FIRM SFHA structures	3,158,105		

6.2 Community Level Results

For individual communities, the stock of total SFHA structures in the majority of the 50 sample communities changes at average annual rates between -0.5 and 1.5 percent from 1997 to 2022. There are, however, a number of communities with rates of growth outside of this range. Among the 50 sample communities, two communities experience an average annual growth between 2.7 and 4.5 percent, with seven communities experiencing growth of more than 1.5 percent. Four communities experience declines of 1.0 percent or more, with the two fastest declining communities declining at an average annual rate of 1.2 percent per year over this period. In general, the growth in total SFHA properties is a function of the rate of decline in pre-FIRM properties and the rate of growth in post-FIRM properties. The rate of growth in post-FIRM properties is primarily a function of the projected population and household growth, with communities with the most rapid projected population and household growth experiencing the fastest growth in post-FIRM properties.

For individual sample communities, the stock of pre-FIRM properties in most of the 50 sample communities declines at an annual average rate of between one and two percent from 1997 to 2022, although there is considerable variation in rates of attrition. Among the 50 sample communities, annual average rates of attrition range from 4.5 percent per year in one community to slightly less than 1.0 percent per year in three other communities. The rate of attrition of pre-FIRM properties is a function of the relative concentration of structures with substantial flood risk as well as local area housing market conditions.

7. The Effects of Subsidy Elimination on Property Values

7.1 Overview of Property Value Changes

This study estimates the change in a structure's property value resulting from the premium change occurring under each of the specified policy scenarios for all pre-FIRM structures. The estimated property value changes reflect the combined effects of several key factors. For pre-FIRM structures below the BFE, these factors include: (1) the change in premiums; (2) NFIP participation rates; and (3) the stock of pre-FIRM structures. For structures at or above the BFE, the estimated property value changes reflect these factors and a fourth factor, the percent of structures determined to have been elevation rated prior to 1998.

- *Changes in Premiums.* For each pre-FIRM property in the SFHA, the premium calculations estimate the change in insurance premiums resulting from charging actuarially based premium rates to pre-FIRM structures. For most pre-FIRM structures below the BFE, the present discounted value of premium increases results in a corresponding decrease in that structure's property value. In this way, increases in flood insurance costs are capitalized as a decrease in the total value of the property. Conversely, for pre-FIRM structures at or above the BFE, the present discounted value of premium decreases results in a corresponding increase in that structure's property value.
- *NFIP Participation Rates.* NFIP participation rates projected in this study affect the estimated property value changes resulting from subsidy elimination. Communities with low participation rates are assumed to experience smaller property value changes resulting from subsidy elimination relative to communities with high participation rates, since structures that are not insured are generally not affected by subsidy elimination.
- *The Stock of Pre-FIRM Structures.* The stock of pre-FIRM structures affects the property value change estimates, since premium changes are a function of specific structure characteristics. Communities with a greater percentage of structures well below the BFE will experience, on average, larger premium increases and therefore correspondingly larger property value declines, all other things being equal. Over time, the structures with the greatest flood risk are removed from the stock of structures faster than those with lower flood risk due to various flood mitigation programs as well as natural attrition. As a result, communities are generally left with a relatively smaller stock of the highest flood risk structures by 2022.
- *The Percent of Elevation Rated Structures Prior to 1998.* Owners can elect for their structures to be elevation rated at any time. For structures at or above the BFE, estimated property value increases resulting from premium decreases are influenced by the percentage of these structures in the community that were elevation rated prior to 1998. Since these elevation rated structures are assumed to already be taking advantage of lower actuarial rates, they experience no property value changes for any of the policy scenarios. All other things being equal, communities with greater concentrations of elevation rated pre-FIRM structures at or above BFE will experience proportionally smaller increases in property values as premiums shift from subsidized to actuarial rates.

7.2 National Level Results

Figure ES.8 presents average property value changes for residential SFHA pre-FIRM structures at or above the BFE and below the BFE over the 1997 to 2022 period for the nation for the seven policy

scenarios. For structures at or above the BFE, the property value changes are averaged across all seven scenarios since premiums decrease immediately for these structures in all seven scenarios.

In general, property value decreases for residential SFHA pre-FIRM structures below the BFE are in the two to four percent range, although the pattern of property value changes over time differs by policy scenario:

- For Scenarios 1, 5, 6, and 7, property value declines are largest in 1998 and smaller in subsequent years as many properties that experience large increases in insurance premiums drop out of the flood insurance program after 1998. In these scenarios, property values decline between three and four percent in 1998, and the rate of decline then slows to 2.3 percent per year by 2022. Here, communities with low flood insurance participation rates experience property value declines that are smaller than those of communities with high flood insurance participation rates. (This occurs because communities with low participation rates, by definition, contain many SFHA structures that are not purchasing insurance (i.e., not paying the premiums); thus, a change in the subsidy has minimal impact on flood insurance purchasing behavior, and by extension, has a smaller impact on property values.) The similarity in property value changes reflects the similarity in premium changes among Scenarios 1, 5, 6, and 7; in these four scenarios, the majority of the premium subsidy is effectively eliminated in 1998, with any remaining premium subsidy fully phased out by 2002.
- In Scenarios 2, 3, and 4, declines in property values are initially smaller, but reach levels similar to those of Scenarios 1, 5, 6, and 7 by 2022. In these scenarios, property values decline between one and two percent in 1998, and increase moderately between 2.4 and 2.7 percent by 2022. The initially smaller declines result from the phase-in of subsidy elimination. This phase-in also results in a smaller decline in participation rates relative to Scenarios 1, 5, 6, and 7, resulting in slightly larger property value changes in the later years than those observed in the other scenarios.
- For structures at or above the BFE in all seven policy scenarios, average property values increase by about one percent in 1998 and 1.3 percent by 2022.

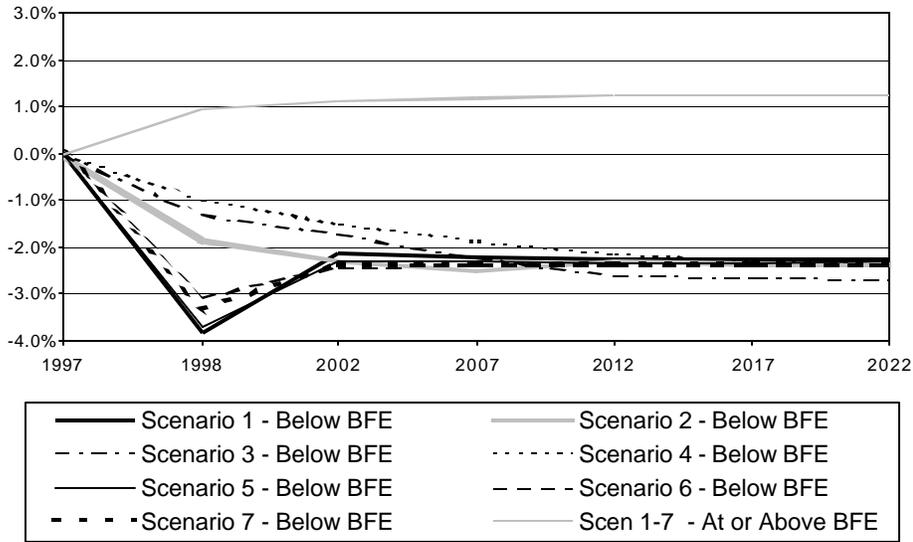
7.3 Community Level Results

Differences in property characteristics lead to considerable variations in the magnitude and direction of property value changes for the 50 sample communities included in this study. Using results from Scenario 1 (immediate subsidy elimination), these wide variations are readily apparent:

- Nine communities experience residential pre-FIRM property value declines of ten percent or more in 1998 as a result of subsidy elimination. Two communities in this group experience property declines of more than 15 percent, and the most severely affected community experiences a decline of 32 percent.
- Eleven communities experience residential pre-FIRM property value declines between three and ten percent in 1998 as a result of subsidy elimination. Five communities in this group experience property declines of more than five percent, and the most severely affected community experiences a decline of eight percent.

Figure ES.8

Property Value Changes for All SFHA Pre-FIRM Residential Structures, 1997-2022



- Six of the 50 sample communities experience an increase in property values for structures below the BFE. These increases are at or below one percent. In general, these communities contain a relatively high proportion of pre-FIRM structures that have basements, the floors of which are only one or two feet below the BFE. For these types of properties, actuarial premiums are lower than subsidized premiums.
- For structures at or above the BFE, average property values increase on the order of 0.5 to 3.5 percent. In general, communities with relatively high property value increases are those with a low number of pre-FIRM structures that had been elevation rated prior to 1998.

8. Case Studies of Economic Effects of Subsidy Elimination

This section presents a summary of community case studies evaluating selected economic effects of premium subsidy elimination for the 50 sample communities. The case studies include information on the economic and risk characteristics for the 50 sample communities and the premium subsidy elimination’s potential economic impact on homeowners, businesses, and overall economic climate.

8.1 Framework for Community Groupings

The results for the case studies for the 50 communities were ranked by the percent change in property value in pre-FIRM structures, from largest negative to largest positive changes in 1998 property values for Scenario 1, where full subsidy elimination occurs in 1998. The ranked communities were subdivided into five groups, with each community experiencing property value changes within the range indicated by the third column of Table ES.2 labeled “Range of Property Value Group Change.”

Table ES.2 presents selected characteristics for the five groups developed for this analysis. In this table and throughout the discussion of community results in the section, overall group averages for a particular variable are calculated as the simple mean of that variable for all communities represented within that group.

Table ES.2
Selected Community Characteristics for Community Groups

Community Group	Number of Communities	Range of Property Value Group Change	1998 Average Pre-FIRM Property Value Change	1998 Average Pre-FIRM Below BFE Property Value Change	1997-98 Average Pre-FIRM Residential Premium Change	1997-98 Average Pre-FIRM Non-Residential Premium Change
Group 1	6	> 10% decrease	-18.2%	-19.1%	\$3,237	\$9,923
Group 2	6	5%-10% decrease	-7.3%	-11.1%	\$1,785	\$4,602
Group 3	10	1%-5% decrease	-2.1%	-4.1%	\$1,378	\$2,973
Group 4	14	≤1% decrease	-0.4%	-1.6%	\$392	\$863
Group 5	14	No change or increase	0.3%	-1.1%	-\$32	-\$64

8.2 Community Group 1

The six communities represented in Group 1 are those among the 50 sample communities estimated to experience the most severe property value declines as a result of subsidy elimination. In all of these six communities, premium increases would have a substantial negative effect on residential property values and would result in relatively large numbers of flood insurance policies being cancelled. In Scenario 1, for example, the immediate shift from subsidized to actuarial rates would cause, on average, a reduction of 50 percent in flood insurance policies in 1998. While the communities in Group 1 vary significantly by economic and demographic characteristics, all of the communities contain a large concentration of properties with substantial flood risk. The following summarizes the impact of subsidy elimination on local area homeowners, businesses, and fiscal conditions for communities represented in Group 1:

- *Local Area Homeowner Impacts.* As a result of subsidy elimination, relatively large estimated premium increases and property value declines in the six communities in Group 1 would most likely result in significant negative effects for local area homeowners. For residential pre-FIRM properties below the BFE, premium increases would be a sizeable share of income for these communities, accounting for an estimated ten percent of median household income on average.
- *Local Area Business Impacts.* Due to the relatively large increases in premiums for non-residential pre-FIRM properties below the BFE, subsidy elimination would substantially affect local area business conditions and employment in the six communities in Group 1. Large increases in average premiums for pre-FIRM non-residential properties located below the BFE could have a significant impact on some commercial establishments located in these communities, and premium increases could account for as much as 20 percent of total business expenses for some commercial establishments.

- *Local Area Fiscal Impacts.* The overall fiscal impacts of subsidy elimination are less severe than the direct impacts on homeowners and businesses located in the six communities since overall fiscal impacts reflect the combined net effects of all SFHA property value changes in the community, including those properties that experience value decreases as a result of premium increases as well as those which experience value increases as a result of premium decreases. Nonetheless, the estimated decreases in local property tax revenues for SFHA structures would be considerable for the communities in Group 1. Due to the reduction in property values resulting from premium increases, local property tax revenues for SFHA structures are estimated to drop by an average of 14 percent in 1998. Given the high increased costs imposed on many homeowners and businesses located in these communities, the estimated declines in local property tax revenues could significantly exacerbate the negative effects of subsidy elimination.

8.3 Community Group 2

The six communities represented in Group 2 are those estimated to experience property value declines between five and ten percent in 1998 as a result of subsidy elimination. All of the communities in Group 2 contain relatively large concentrations of properties with substantial flood risk, though not as large as those concentrations found in Group 1. For all of the communities in Group 2, relatively large numbers of flood insurance policies would be cancelled as a result of large premium changes associated with subsidy elimination. In Scenario 1, for example, the immediate shift from subsidized to actuarial rates would cause, on average, a 24 percent reduction in flood insurance policies from in 1998. The following summarizes the impact of subsidy elimination on local area homeowners, businesses, and fiscal conditions for communities represented in Group 2:

- *Local Area Homeowner Impacts.* Despite having a significant share of properties at or above the BFE that would experience premium decreases as a result of subsidy elimination, the relatively large estimated premium increases and property value decreases for properties below the BFE in the six communities in Group 2 would likely cause significant local area economic impacts. For residential pre-FIRM properties below the BFE, premium increases would be a sizeable share of income for these communities, equaling an estimated eight percent of median household income on average.
- *Local Area Business Impacts.* Due to the relatively large increases in premiums for non-residential pre-FIRM properties below the BFE, subsidy elimination would substantially affect local area business conditions and employment in the six communities in Group 2. Large increases in average premiums for non-residential pre-FIRM properties located below the BFE would likely have a significant impact on some commercial establishments located in the six communities. Premium increases could account for as much as 12 percent of total business expenses for some commercial establishments.
- *Local Area Fiscal Impacts.* Although the overall fiscal impacts of subsidy elimination are less severe than the direct impacts on homeowners and businesses located in the six communities, the estimated decreases in local property tax revenues would be considerable for all of the communities in Group 2. From the reduction in property values due to premium increases, local property tax revenues for SFHA structures are estimated to drop by an average of five percent in 1998. Given the high increased costs imposed on many homeowners and businesses located in these communities, the estimated declines in local property tax revenues could significantly exacerbate the negative effects of subsidy elimination.

8.4 Community Group 3

The ten communities represented in Group 3 would experience property value declines between one and five percent in 1998 as a result of subsidy elimination. In general, the communities contain sizeable concentrations of properties with substantial flood risk, though not as large as those concentrations found in Groups 1 and 2. For most of the communities in Group 3, a considerable number of flood insurance policies would be cancelled as a result of large premium changes associated with subsidy elimination. In Scenario 1, for example, the immediate shift from subsidized to actuarial rates would cause, on average, a 21 percent reduction in flood insurance policies in 1998. The following summarizes the impact of subsidy elimination on local area homeowners, businesses, and fiscal conditions for communities represented in Group 3:

- *Local Area Homeowner Impacts.* Overall, premium increases resulting from subsidy elimination for the ten communities in Group 3 would have a moderate impact on pre-FIRM residential property values. Despite premium decreases for the residential properties at or above the BFE, the relatively large estimated premium increases and property value declines for pre-FIRM properties located below the BFE in the Group 3 communities would likely cause significant local area economic impacts in most communities. For residential pre-FIRM properties below the BFE, premium increases would be a sizeable share of income for these communities, equivalent to an estimated six percent of median household income on average.
- *Local Area Business Impacts.* Overall, subsidy elimination would moderately affect local business conditions and employment in nine of the ten communities in Group 3. Although premium increases are large for some non-residential properties, the relatively small concentration of non-residential, below BFE properties in these communities limits the number of businesses affected. For some affected commercial establishments, however, premium increases could account for as much as ten percent of total business expenses.
- *Local Area Fiscal Impacts.* The combined net effects of property value changes for both at or above BFE SFHA and below BFE SFHA structures result in a net decrease in local property tax revenues, although the decreases are relatively small. Local property tax revenues for SFHA structures are estimated to decline by an average of 1.5 percent in 1998 for the communities in Group 3. Given their relatively small magnitude, the estimated declines in local property tax revenues would not significantly heighten the negative effects of subsidy elimination.

8.5 Community Group 4

The 14 communities classified in Group 4 are estimated to experience an overall property value decline of less than one percent in 1998 as a result of subsidy elimination. Overall, premium increases would have a small impact on pre-FIRM residential property values in the Group 4 communities because relatively few properties are exposed to substantial flood risk. For all but two of the communities in Group 4, no more than a quarter of residential pre-FIRM properties are significantly below the BFE. For most of the 14 communities in Group 4, relatively modest numbers of flood insurance policies would be cancelled as a result of large premium changes associated with subsidy elimination. In Scenario 1, for example, the immediate shift from subsidized to actuarial rates would cause, on average, a 15 percent reduction in flood insurance policies in 1998. The following summarizes the impact of subsidy elimination on local area homeowners, businesses, and fiscal conditions for communities represented in Group 4:

- *Local Area Homeowner Impacts.* With the relatively low concentration of properties significantly below the BFE for the communities in Group 4, average premium increases for residential pre-FIRM structures below BFE would be considerably smaller than those for communities in Groups 1, 2, and 3. Given the relatively modest premium increases for residential pre-FIRM properties below the BFE, premium increases would constitute a moderate share of income for these communities, equivalent to an estimated three percent of median household income, on average, for the 14 communities.
- *Local Area Business Impacts.* Overall, subsidy elimination would moderately affect local business conditions and employment in six of the 14 communities in Group 4. Although premium increases are large for selected non-residential properties, there is a relatively low concentration of high flood risk, non-residential, pre-FIRM properties in these communities. Consequently, only a small number of businesses located in these communities would experience sizeable premium changes as a result of subsidy elimination. Even for relatively small commercial establishments, premium increases for below BFE pre-FIRM properties would likely account for less than three percent of total business expenses in these communities.
- *Local Area Fiscal Impacts.* Reflecting the combined net effects of property value changes for both above BFE SFHA as well as below BFE SFHA structures, the subsidy elimination results in decreases in local property tax revenues which would be relatively small for the 14 communities in Group 4. For all of the 14 communities, the reduction in property values for SFHA structures from subsidy elimination would lower tax revenues by an average of less than 0.5 percent in 1998. Given the relatively small magnitude of the declines, the lower property tax revenues would not have a significant effect in these communities.

8.6 Community Group 5

The 14 communities represented in Group 5 of Table ES.2 are those among the 50 sample communities that are estimated to experience overall property value increases as a result of subsidy elimination. Since overall property value changes for a community reflect the net effect of property value decreases for structures experiencing premium increases (the case for most structures below the BFE) and of property value increases for structures experiencing premium decreases (the case for structures at or above the BFE), the communities in Group 5 reflect those areas in which the positive economic effects of premium decreases have more than offset the negative economic effects of premium increases within a community. For most of the 14 communities in Group 5, relatively few flood insurance policies would be cancelled as a result of premium changes associated with subsidy elimination. The following summarizes the impact of subsidy elimination on local area homeowners, businesses, and fiscal conditions for communities represented in Group 5:

- *Local Area Homeowner Impacts.* Overall, premium increases for the 14 communities in Group 5 resulting from subsidy elimination would not have a significant impact on pre-FIRM residential property values because relatively few residential properties in these communities are exposed to substantial flood risk. With the relatively low concentration of pre-FIRM properties significantly below the BFE for the 14 communities in Group 5, average premium increases for residential pre-FIRM structures below the BFE would be relatively small. Given these relatively small premium increases for residential pre-FIRM properties below the BFE, premium increases would be equal to a relatively small share of income for these communities, equal to less than one percent of median household income on average. Given the relatively low concentrations of high risk, residential structures and relatively high concentrations of properties at or above the BFE, residential premium increases would not significantly affect the communities in Group 5.

- *Local Area Business Impacts.* Given the high concentrations of non-residential properties at or above the BFE and relatively small premium increases for those non-residential structures below the BFE, subsidy elimination would not significantly affect local business conditions and employment in the 14 communities in Group 5. For businesses, including small commercial establishments located in the area, premium increases for non-residential properties below the BFE would likely account for less than one percent of the cost of doing business in these communities.
- *Local Area Fiscal Impacts.* Reflecting the combined net effects of property value changes for both above BFE SFHA and below BFE SFHA structures, the fiscal impacts of subsidy elimination would reflect a small net increase in local property tax revenues for SFHA structures. For the 14 communities, on average, however, this net property tax increase for SFHA structures would average less than 0.2 percent in 1998. Given this slight local property tax revenue increase, local tax revenue changes due to subsidy elimination would not adversely affect businesses and homeowners located in these communities.