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Economic Impacts of the Anticipated Non-Accreditation of Bernalillo County Levees

Daren Ruiz

Lee A. Reynis

Molly J. Bleecker

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ECONOMIC IMPACTS OF THE ANTICIPATED NON-ACCREDITATION OF BERNALILLO COUNTY LEVEES

PART 1: ESTIMATED COST OF INCREASED FLOOD
INSURANCE

September 2010

University of New Mexico
Bureau of Business and Economic Research
303 Girard Blvd. NE
MSC06 3510 / Onate Hall
Albuquerque, NM

University of New Mexico
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INSURANCE

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Daren Ruiz, M.A. with
Molly Bleecker, M.A.

Acknowledgements

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We also acknowledge the contribution of internal staff in the completion of this study. Dr. Lee Reynis, Director, detailed the scope of work and provided study direction. Andrew Webb, Research Scientist, contacted industry experts and researched NFIP regulations. Sean Petranovich, work study employee, queried and compiled mortgage data. Scott Maddux, also a work study employee, surveyed business owners in the current floodplain and identified apartments in the Assessor database.

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Table of Acronyms

ACS: American Community Survey

AMAFCA: Albuquerque Metropolitan Arroyo Flood Control Authority

BBER: Bureau of Business and Economic Research

BFE: Base Flood Elevation

FEMA: Federal Emergency Management Agency

FIRM: Flood Insurance Rate Map

FIS: Flood Insurance Study

FPF: Federal Policy Fee

GIS: Geographic Information System

ICC: Increased Cost of Compliance

NFIP: FEMA's National Flood Insurance Program

PRP: Preferred Risk Policy

PUMA: Public Use Microdata Areas

Executive Summary

The Bureau of Business and Economic Research estimates the increased cost of flood insurance for those parcels located in the floodplain that would result from the anticipated Rio Grande levee non-accreditation in Bernalillo County (the “net new floodplain”) will range from a low of \$4.2 million in the first year and \$5.3 million a year thereafter to a high of \$8.0 million in the first year and \$8.7 million a year thereafter, with the most likely cost being about \$5.5 million in the first year and \$6.2 million a year thereafter. Homeowners with a federally-backed mortgage in a floodplain are required to purchase flood insurance and were the only property owners considered in these estimates. Businesses were excluded from the analysis due to historically low flood insurance purchase rates.

The net new floodplain was determined as the difference in the anticipated Rio Grande floodplain less the current floodplain. The net new floodplain is expected to affect 13,267 parcels, of which 10,690 are residential. We assumed apartments would not buy flood insurance, based on conversations with insurance agents, and pulled out 14 apartments, as they are classified as residential in the 2009 Assessor’s property tax database. We also assumed home owners without a mortgage would not purchase flood insurance, reducing the parcels likely to be forced to buy flood insurance to 7,549.

We applied the following assumptions to estimate the cost of flood insurance policies for this group of parcels:

1. The entire net new floodplain was assumed to be classified as Flood Zone A.
2. Each residential parcel was assumed to be a single family residence with no basement and one floor.
3. The improvement value of the residential parcel from the 2009 Bernalillo County Assessor’s property tax database was used as a proxy for the replacement cost.
4. Coverage amount was 80 percent of replacement cost.
5. Each single family residence was estimated to be built during the same year as the average year in which the structures were built in the corresponding Public Use Microdata Area, which comes from the United States Census Bureau’s American Community Survey.
6. Each policy includes an Increased Cost of Compliance premium.
7. Each policy was charged a Federal Policy Fee.
8. A Community Rating System discount was applied to all applicable policies.

Once the standard assumptions were applied, we estimated a lower cost estimate, a most likely cost estimate, and a higher cost estimate by varying the following assumptions: the rate of “grandfathering” among the policy holders; the deductible amount chosen; and the inclusion or exclusion of contents coverage.

Introduction

The Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) contracted the University of New Mexico's Bureau of Business and Economic Research (BBER) to estimate the economic impacts of the Federal Emergency Management Agency (FEMA) not accrediting the levees in Bernalillo County. The current levees are not expected to meet FEMA's post Hurricane Katrina standards, and FEMA will not recognize them as protecting against potential flooding from the Rio Grande.

In this study, BBER estimates the increased cost of flood insurance as a result of the increase in the floodplain. BBER estimated this increase by calculating the difference between the anticipated Rio Grande floodplain were the levees not present, as estimated by Mussetter Engineering Inc. (now part of Tetra-Tech, Inc.), and the current floodplain, as defined by FEMA's September 2008 Flood Insurance Rate Map. (This increase in the floodplain BBER termed the "net new floodplain".) The next study will estimate the effects on real estate values and residential development, and these effects, along with the increased cost of insurance, will serve as the basis for estimating the economic and fiscal impacts.

The first section of this study describes the current floodplain in Bernalillo County and participation in the FEMA flood insurance program. The second section describes the anticipated Rio Grande floodplain, calculates the net new floodplain, and identifies parcels that will be in the net new floodplain. The last section estimates the cost of flood insurance in the net new floodplain.

Participation in the FEMA Flood Insurance Program

Around 200,000 communities around the country participate in Federal Emergency Management Agency's (FEMA's) National Flood Insurance Program (NFIP). The program was created by the federal government in 1968 to fill a gap when insurance companies began to move away from providing coverage for certain natural disasters, such as floods and earthquakes. By choosing to participate in the program, a community assumes responsibility for "adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities".¹

Description of the Current Floodplain in Bernalillo County

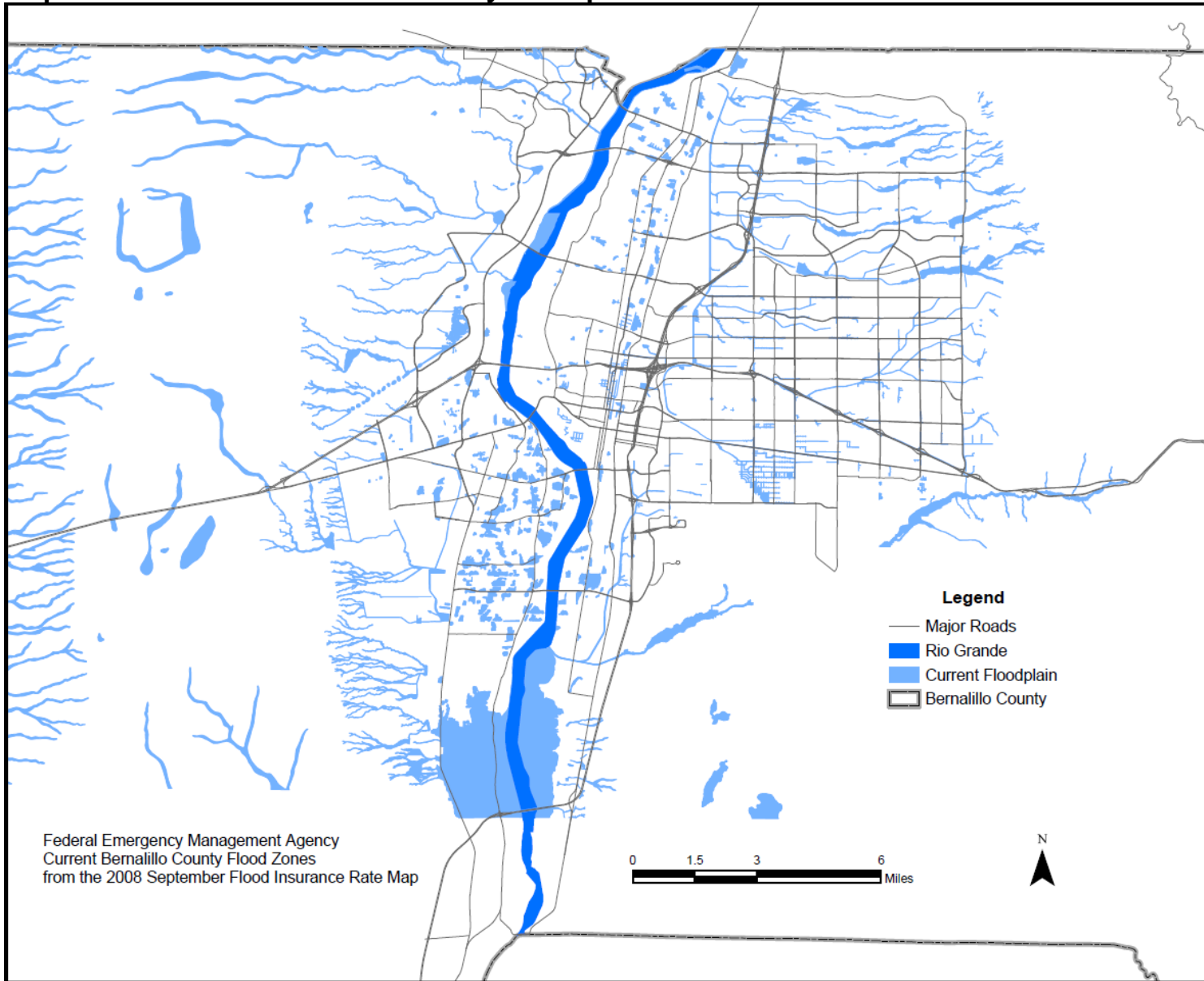
The current floodplain in Bernalillo County was adopted by FEMA in September 2008. The floodplain designation includes four different types of flood zones that are considered high risk: A, AE, AH, and AO (See Appendix A for a description of each flood zone). According to FEMA, each flood zone represents "... a 1 percent chance of flooding in any year — and a 26 percent chance of flooding over the life of a 30-year mortgage."² There are roughly 31,764 acres in the current floodplain. Map 1 shows the current floodplain in Bernalillo County.

BBER treated the area protected by the newly rebuilt levees along the Rio Grande in the South Valley as in the current floodplain. The levees have been built to meet the new post Hurricane Katrina standards at the 100-year event. However, FEMA has not yet accredited the levees, and it is not known when they will.

¹ "The National Flood Insurance Program", FEMA. www.fema.gov/about/programs/nfip/index.shtm

² "Flood Insurance: The Right Choice", FEMA. http://www.fema.gov/txt/hazard/midwestfloods_factsheet2008.txt

Map 1: The Current Bernalillo County Floodplain



Current Use of Flood Insurance

There were 16,647 flood insurance policies in force for the entire state of New Mexico as of July 31, 2009. Table 1 displays insurance coverage by flood zone and occupancy in New Mexico and shows the majority of policies issued were residential, with a vast majority covering single family dwellings. There were only 1,341 business policies, which is about a 2.9 percent participation rate among New Mexico business establishments.³ There were also only 342 'other residential' policies. FEMA includes apartments in this category.

There were 2,720 flood insurance policies written in Bernalillo County as of August 31, 2009. Table 2 displays insurance coverage by community and shows that the average insurance policy coverage in force in the county was \$195,909 and includes all types of coverage (building only, contents only, and building and contents). The average written premium in force was \$637 and includes all occupancy types (single family, 2-4 family, other residential, and non-residential small business).⁴

³ Calculated as a percent of the 46,869 business establishments in New Mexico in 2007 reported by the U.S. Department of Commerce's Bureau of the Census' County Business Patterns.

⁴ Premiums are paid annually.

Table 1: Flood Insurance Policies in Force by Flood Zone and Occupancy, 2009

FLOOD ZONE ¹	SINGLE FAMILY DWELLING	2-4 FAMILY DWELLING	OTHER RESIDENTIAL	NON-RESIDENTIAL SMALL BUSINESS	NON-RESIDENTIAL NON-SMALL BUSINESS	TOTAL	TOTAL PREMIUM (INCLUDING FPF)	TOTAL COVERAGE (IN \$ HUNDREDS)
A	2,203	67	16	0	168	2,454	2,190,590	3,392,721
AE	3,856	97	113	0	428	4,494	3,399,217	6,930,871
AH	2,100	161	46	0	327	2,634	1,498,950	3,303,638
AO	2,331	97	98	0	252	2,778	1,461,705	3,305,927
Blank (Regular Program)	128	0	0	0	0	128	76,800	34,816
D	4	0	0	0	0	4	3,081	5,057
Emergency Program	30	0	0	0	1	31	10,615	11,730
X	3,848	42	69	0	165	4,124	1,769,709	10,241,322
New Mexico Total	14,500	464	342	0	1,341	16,647	10,410,667	27,226,082

¹ Flood zone A = A un-numbered; AE = A01 - A30 and AE; AH = AH and AHB; AO = AO, AOB, AOB, and A00; BLK = Blank (Regular Program); D = D; EMG = Emergency Program; X = B, C, and X

Source: FEMA National Flood Insurance Program Report W2RPCNTA, September 30, 2009.

Table 2: Flood Insurance Policies in Force by Community in Bernalillo County, 2009

COMMUNITY NAME	POLICIES IN FORCE	INSURANCE IN FORCE (WHOLE \$)	WRITTEN PREMIUM IN FORCE	AVERAGE INSURANCE IN FORCE, WHOLE \$	AVERAGE WRITTEN PREMIUM IN FORCE
City of Albuquerque	1,469	293,568,200	899,576	199,842	612
Unincorporated Bernalillo Co.	1,197	224,435,400	804,092	187,498	672
Los Ranchos de Albuquerque	50	14,257,300	26,700	285,146	534
Village of Tijeras	4	610,600	2,954	152,650	739
Total Bernalillo County	2,720	532,871,500	1,733,322	195,909	637

Source: FEMA National Flood Insurance Program Policy Statistics.

Calculating the Net New Floodplain

Since the increased cost of flood insurance will be confined to areas that are added to the floodplain, BBER used only these areas in its flood insurance cost estimates. How BBER determined this area (henceforth described as the “net new” floodplain) is described in this section.

The Anticipated Rio Grande Floodplain

The anticipated Rio Grande floodplain is the collection of all areas where a hydrological model predicts water depth if no levees were present along the Rio Grande. It is shown in Map 2. Mussetter Engineering Inc. simulated the effects of an increased river flow with the assumption that there were no levees along the river. The subsequent spillage was tracked through adjacent areas in conjunction with surface elevation data, and water depth was recorded at regular intervals.⁵ Any area where water depth was measured was considered to represent flooding and comprised the floodplain. There are about 12,710 square acres in the anticipated floodplain.

The anticipated Rio Grande floodplain was estimated by a more conservative model than FEMA uses in their flood insurance rate map (FIRM) creation, so the final floodplain estimated by FEMA will be larger than the anticipated floodplain. FEMA is expected to begin the FIRM revision for Bernalillo County around 2013-2015. FEMA typically follows these steps in issuing new FIRMs:

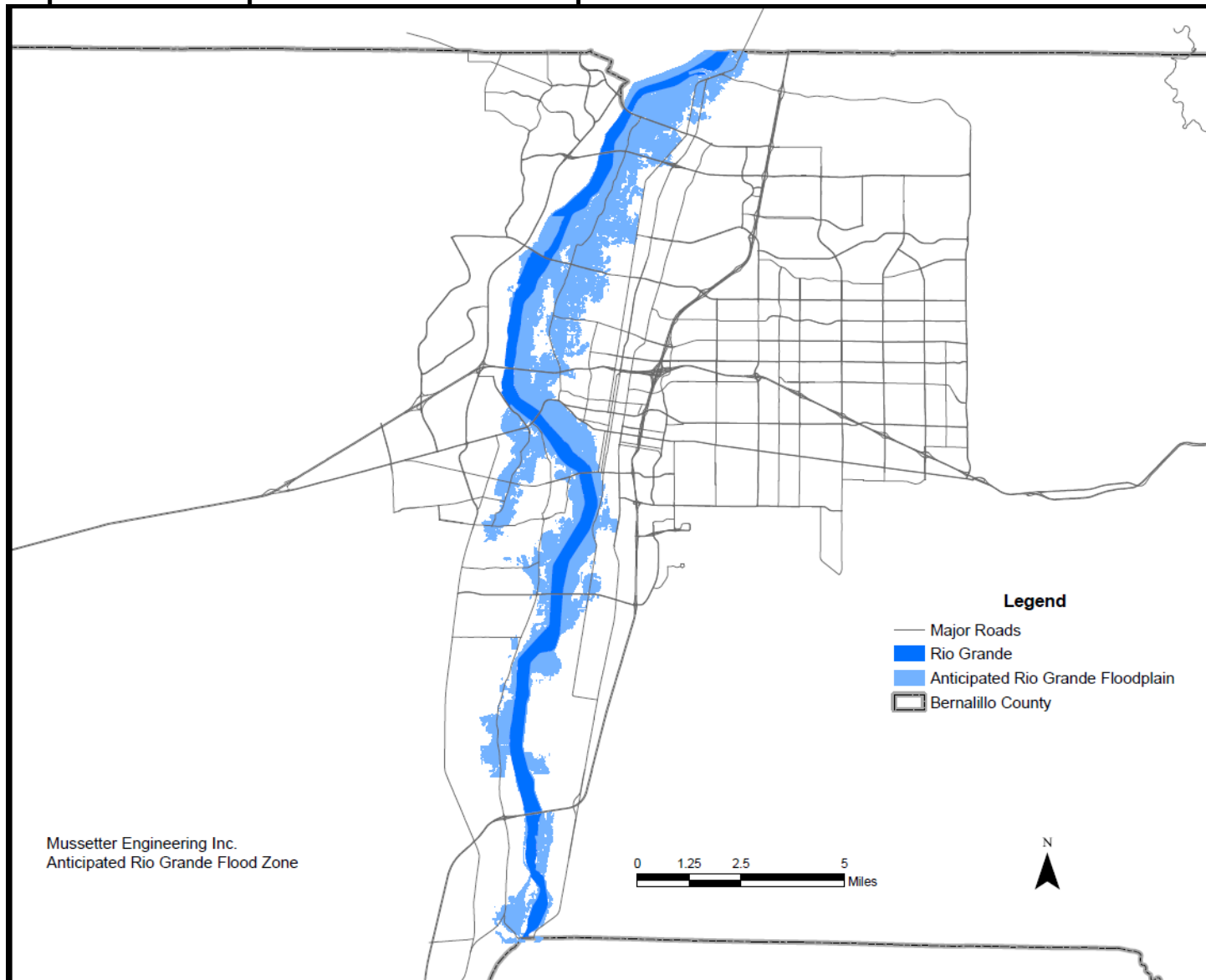
1. Scoping and map production, including establishment of base flood elevation.
2. FEMA presents preliminary flood insurance study (FIS) and FIRM to community officials at meetings.⁶
3. Proposed rule is published in the Federal Register.
4. Public notices are published twice in local newspapers.
5. 90-day appeal period begins after second public notice is published in the local newspaper.
6. 30-day review period begins after resolution of appeals.
7. Final rule is published in the Federal Register.
8. Adoption / compliance period begins six months after final rule publication.
9. Final FIS and FIRMs are effective.

⁵ BBER considered the anticipated Rio Grande floodplain Flood Zone A for the insurance cost estimates. Flood Zone A is a high risk zone in which the depth of flooding or a base flood elevation is not specified. Although water depth of flooding was estimated in the anticipated floodplain, it will most likely change in the new FIRM produced by FEMA.

⁶ FEMA, in its “Flood Hazard Mapping Fact Sheet”, describes an FIS as “... a narrative report of the community’s flood hazards that contains prior flooding information, descriptions of the flooding sources, information on the protection measures, and a description of the hydrologic and hydraulic methods used in the study” and a FIRM as illustrating “... the extent of flood hazards in the community by depicting flood risk zones and the Special Flood Hazard Area . . .”. The FIRM “is used with the FIS report to determine the floodplain development regulations that apply in each flood risk zone and who must buy flood insurance.”

<http://www.co.gloucester.va.us/es/FloodManagementInfo/Flood%20Fact%20Sheet.pdf>

Map 2: The Anticipated Rio Grande Floodplain



The Net New Floodplain

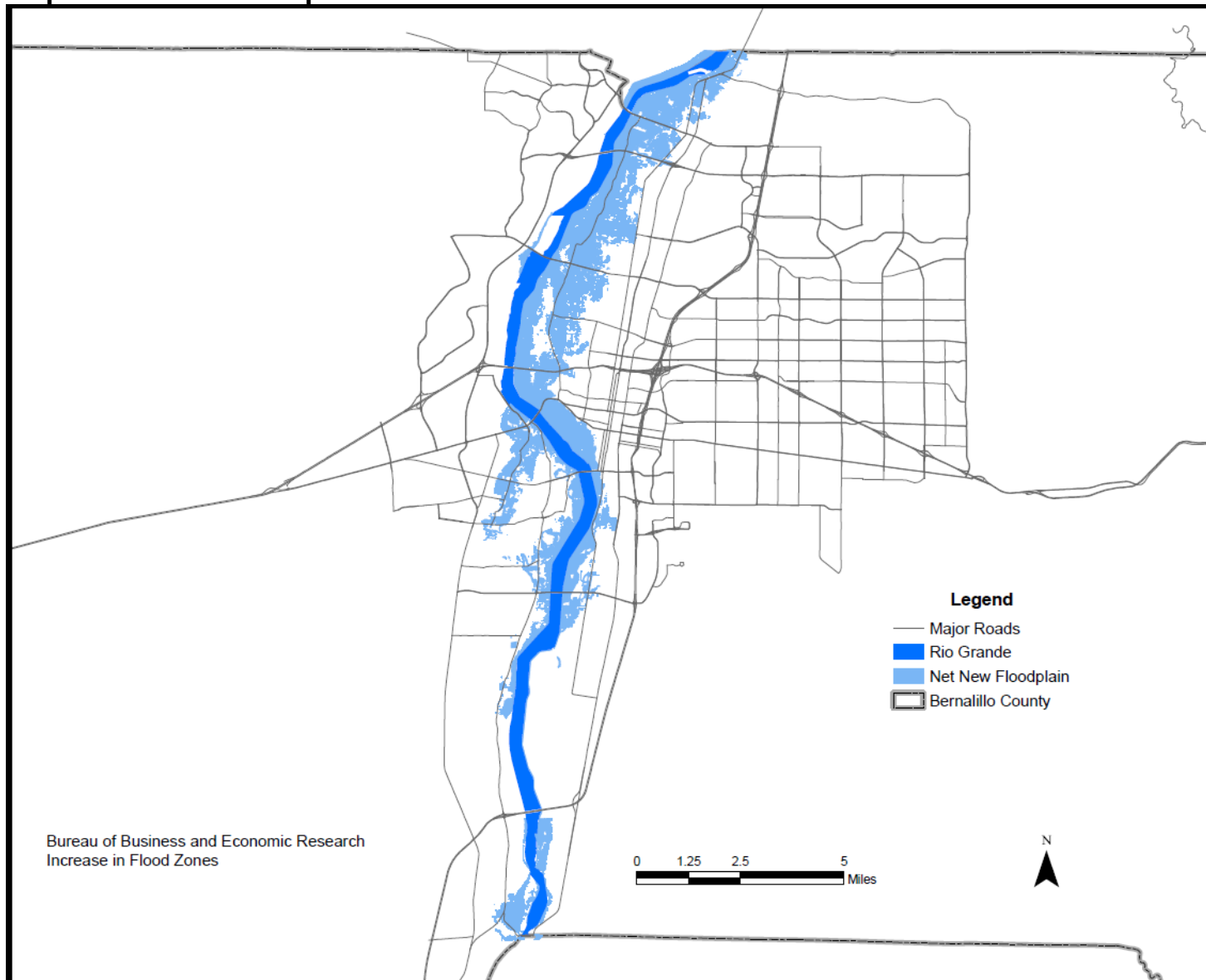
The net new floodplain is made up of the area in the anticipated floodplain that is not in the current floodplain. Not included in the net new floodplain are 1) those areas that are in both the current and the anticipated floodplains; 2) those areas that are in neither the current nor the anticipated floodplains; and 3) those areas that are in the current floodplain but not in the anticipated floodplain.

The reason the third set of areas was excluded has to do with the differences in extents covered by the two floodplain models (see Maps 1 and 2): the current floodplain is based upon the current FIRM, which incorporates all potential sources of flooding, whereas the anticipated floodplain modeled by Mussetter Engineering incorporates only potential flooding from the Rio Grande. Areas included in the current floodplain but not included in the anticipated floodplain were excluded because it was assumed that the majority of these areas would be unaffected by levee de-accreditation, being caused by sources of flooding other than the river, such as ponding.⁷

Following these calculations, BBER estimated that there are about 8,339 square acres in the net new floodplain, which is shown in Map 3.

⁷ As discussed in the previous section, Bernalillo County's floodplain consists of four different flood zone types: A, AE, AH, and AO. See Appendix A for a description of each flood zone.

Map 3: Net New Floodplain



Identification of Parcels in the Net New Floodplain

The Bernalillo County Assessor's November 2009 property tax database was used to identify parcels in the current and the anticipated floodplains, and the difference between these makes up the parcels in the net new floodplain.⁸ The process of identifying those parcels in the net new floodplain mirrored that of the net new floodplain creation. First, all the parcels that intersected the current floodplain were identified. Then all the parcels that intersected the anticipated floodplain were identified. Parcels that were intersected by the anticipated floodplain and not by the current floodplain comprise the net new floodplain parcels. Not included in the net new floodplain parcels are: 1) those parcels that were intersected by both the current and the anticipated floodplains; 2) those parcels that were not intersected by either floodplain; and 3) those parcels that were intersected by the current floodplain, but not by the anticipated floodplain.

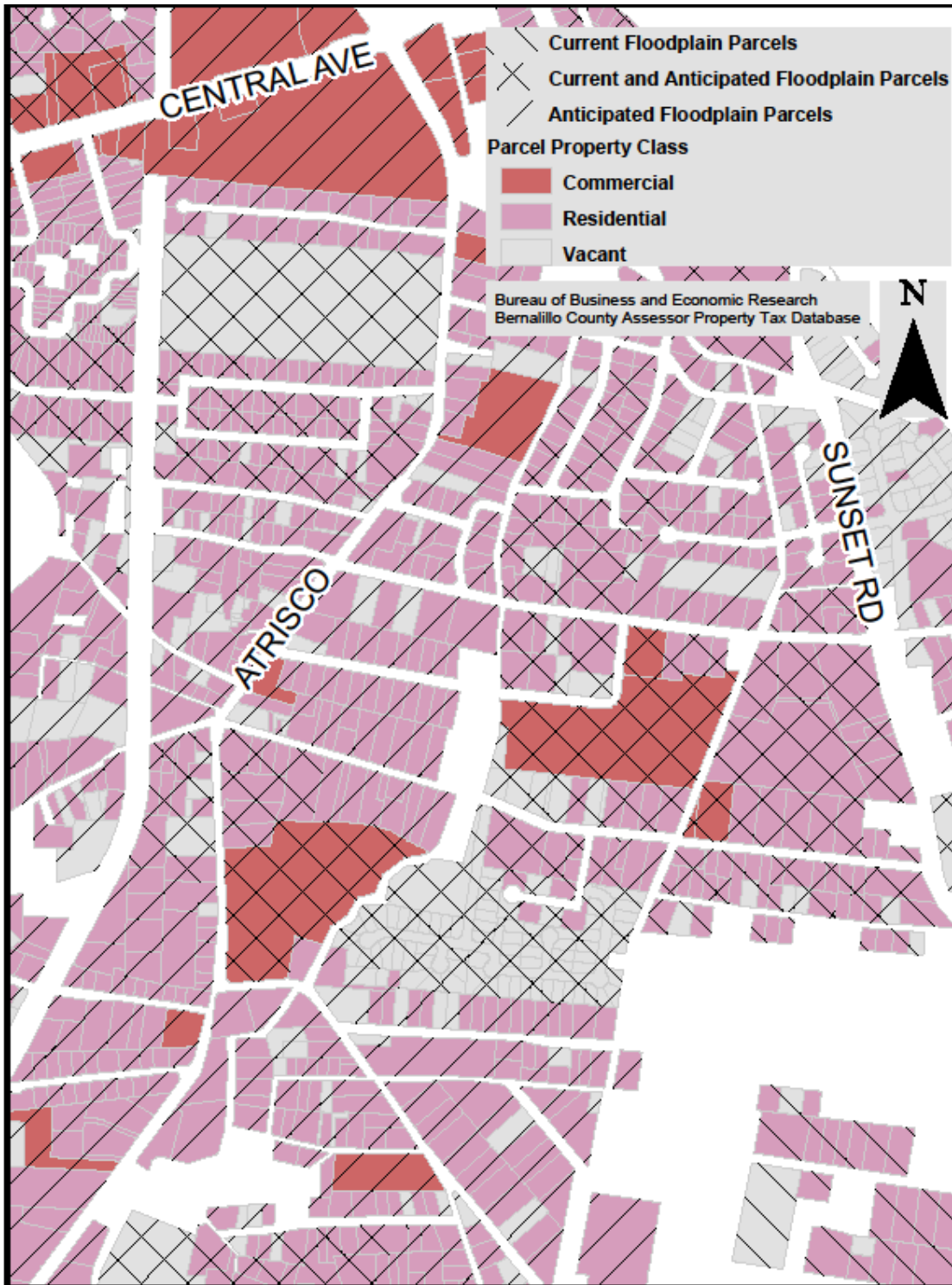
Map 4 displays graphically the method used to generate the parcels included in the net new floodplain. The map shows a small section of parcels affected by the different combinations of the current and anticipated floodplain spatial relations. Cross-hatching demarcates the floodplain scenarios, and the colors represent the parcel type. The net new floodplain is comprised of parcels intersected by the anticipated floodplain and not by the current floodplain, (upward sloping cross-hatching). Not included in the net new floodplain parcels are parcels intersected by both the current and the anticipated floodplains (X pattern cross-hatching) and parcels intersected by the current floodplain and not by the anticipated floodplain (downward sloping cross-hatching).

In the Assessor's database, each parcel is classified as commercial, residential, or vacant and includes assessed land, improvement, and agricultural values. The values of buildings are captured in the improvement value. According to the Bernalillo County Assessor Handbook, (April 2008), the residential improvement value is an estimate of the market value of the house; this data was used as a proxy for replacement cost in BBER's calculations.⁹ No other available database relates parcels to replacement values.

⁸ The Assessor is responsible for locating, identifying, and valuing property (land, improvements, manufactured homes, business equipment and livestock) and maintaining fair assessments for tax purposes. Property taxes are levied on a third of the difference between total assessed value and total exemptions. The Assessor's database is in geographic form and BBER selected those parcels that intersected the relevant floodplains, whether the parcel was partially or wholly contained in the floodplain.

⁹ Coverage amount was taken to be 80 percent of replacement value, e.g., if a house would cost \$100,000 to build, then coverage amount would be \$80,000.

Map 4: Current and Anticipated Floodplain Parcel Intersections



The current Bernalillo County floodplain intersects 14,020 parcels with a total improvement value of \$2.5 billion. The anticipated Rio Grande floodplain intersects 15,693 parcels with a total improvement value of \$1.9 billion. The net new floodplain is comprised of 13,267 parcels, with a total improvement value of \$1.7 billion. Tables 3, 4, and 5 show the count of parcels by property class (commercial, residential, and vacant) and aggregated land, agricultural, and improvement values for the current, anticipated, and net new floodplains, respectively.

The parcel counts, types, and values differ across the three scenarios because there are parcels intersected by the current floodplain that are not intersected by the anticipated floodplain and vice versa. For example, there are more residential parcels intersected by the anticipated floodplain than are intersected by the current floodplain; hence there are more residential parcels in the net new floodplain. Similarly, there are fewer commercial parcels intersected by the anticipated floodplain than are intersected by the current floodplain, so there are fewer commercial parcels in the net new floodplain.

Table 3: Bernalillo County Parcels Intersected by the Current Floodplain

	Commercial	Residential	Vacant	Grand Total
Count of Parcels	1,170	8,007	4,843	14,020
Land Value	\$956,426,723	\$466,367,206	\$1,709,096,124	\$3,131,890,053
Agricultural Value	\$472,383	\$7,935,670	\$1,593,126	\$10,001,179
Improvement Value	\$1,318,718,764	\$1,191,903,857	\$12,373,503	\$2,522,996,124

Source: Bernalillo County Assessor's 2009 property tax database and FEMA September 2008 Flood Insurance Rate Map

Table 4: Bernalillo County Parcels Intersected by the Anticipated Rio Grande Floodplain

	Commercial	Residential	Vacant	Grand Total
Count of Parcels	546	12,519	2,628	15,693
Land Value	\$169,034,604	\$575,245,267	\$262,095,726	\$1,006,375,597
Agricultural Value	\$830,833	\$20,561,183	\$971,578	\$22,363,594
Improvement Value	\$309,680,445	\$1,599,895,253	\$9,177,591	\$1,918,753,289

Source: Bernalillo County Assessor's 2009 property tax database and Mussetter Engineering Inc. Anticipated Rio Grande Floodplain

Table 5: Bernalillo County Parcels in the Net New Floodplain

	Commercial	Residential	Vacant	Grand Total
Count of Parcels	418	10,690	2,158	13,267
Land Value	\$141,855,571	\$506,871,247	\$199,044,907	\$847,771,725
Agricultural Value	\$830,833	\$17,787,731	\$340,820	\$18,959,384
Improvement Value	\$246,371,200	\$1,434,586,227	\$8,357,656	\$1,689,315,083

Source: Bernalillo County Assessor's 2009 property tax database, FEMA September 2008 Flood Insurance Rate Map, and Mussetter Engineering Inc. Anticipated Rio Grande Floodplain

Estimation of Flood Insurance Costs in the Net New Floodplain

This section describes BBER's estimation of the cost of increased flood insurance purchases as a result of levee non-accreditation. As described in the previous section, if the levees along the Rio Grande in Bernalillo County were not accredited, thousands of parcels not considered to be in the current floodplain would be re-classified as in the net new floodplain. Of these parcels, those with federally-backed mortgages would be obligated to purchase flood insurance due to the fact that Bernalillo County participates in FEMA's National Flood Insurance Program (NFIP).¹⁰

Methodology and Assumptions

To estimate the cost of increased flood insurance purchases, BBER began with those parcels in the Bernalillo County Assessor database that would be intersected by the net new floodplain. This dataset was trimmed down through a series of steps to better approximate the set of parcels most likely to be required to purchase flood insurance.

First, "vacant" parcels were removed because, despite the fact that some of these properties had improvement values, indicating the presence of a structure on the property, the structures are considered by the Assessor's Office as uninhabitable.¹¹

Second, "commercial" parcels were removed based upon discussions with NFIP staff, commercial property owners, and insurance agents. Most businesses are financed through commercial lending that is not federally-backed and therefore, are not required to purchase flood insurance. BBER also spoke to ten owners of business properties in the current floodplain and learned that none of them had flood insurance. Further, the seven local insurance agents BBER spoke to indicated very few businesses purchased flood insurance (one agent said that less than five percent of the businesses that have other types of insurance policies through his agency included flood insurance in the policy. As discussed previously, NFIP statistics showed only 1,341 business policies in New Mexico in September 2009, which BBER estimated to be a three percent flood insurance participation rate among business establishments within the state.

Finally, apartments were removed because apartment building owners do not usually have federally-backed financing that would require them to purchase flood insurance and the insurance agents we spoke to said it was very rare for apartment building owners to purchase flood insurance policies.¹²

¹⁰ "The National Flood Insurance Program", FEMA. www.fema.gov/about/programs/nfip/index.shtm

¹¹ Communication with the County Assessor's Office, Jan 28, 2010.

¹² In order to remove apartments from the Assessor database, BBER first grouped the parcels by property class (commercial, residential, or vacant), then sorted them by improvement value, and finally used satellite

The resulting database, assumed to consist of single- to four-family residential properties within the net new floodplain, forms the basis of the flood insurance cost estimates.

Cost Calculations

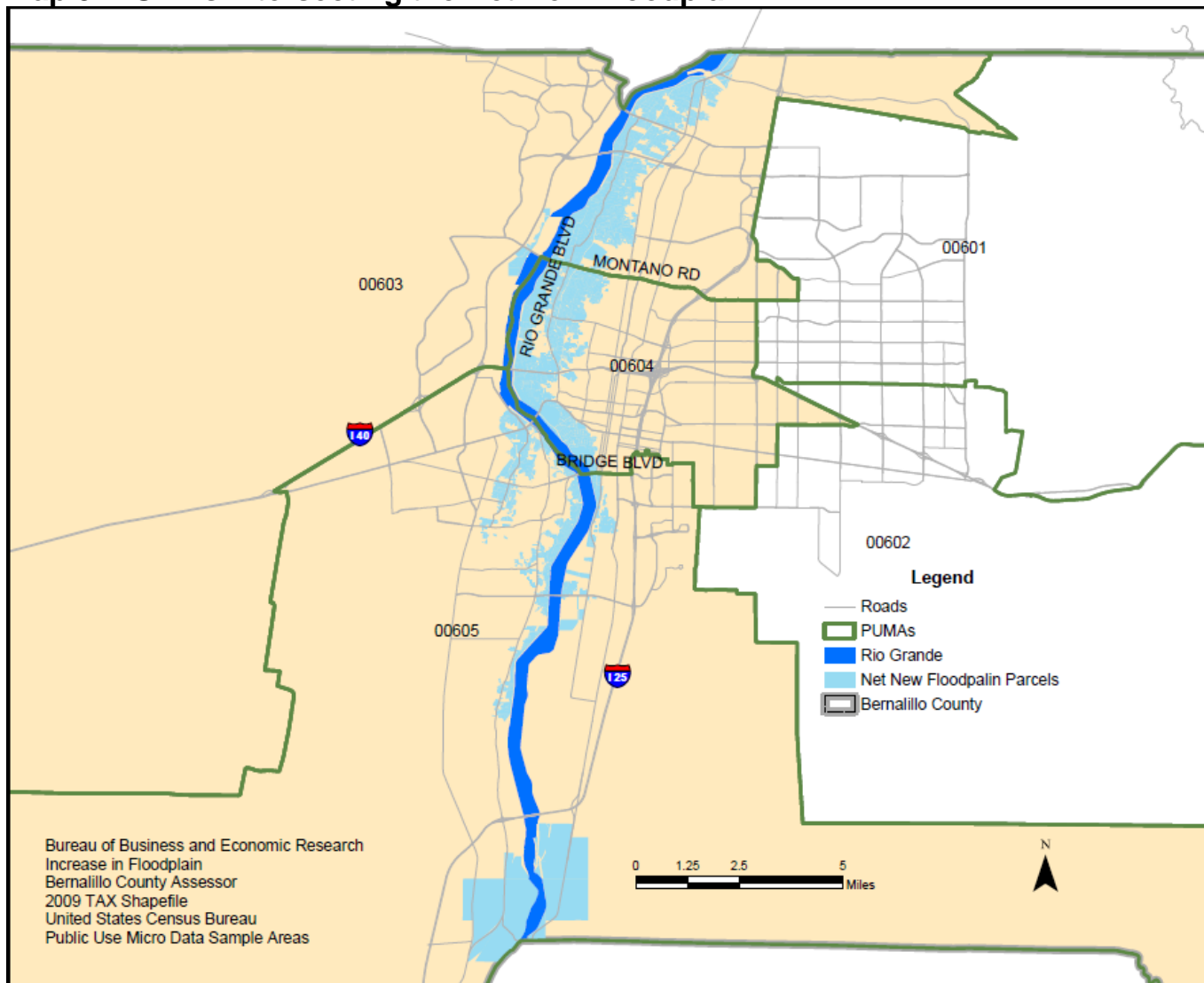
Before BBER was able to assign flood insurance rates to the parcels in the dataset, three other variables needed to be taken into account: the mortgage status of the property, the likelihood that the property owner would choose to “grandfather” into a flood insurance policy, and the date of construction of the property relative to the date of the first Flood Insurance Rate Map (FIRM) for Bernalillo County.

As mentioned previously, under the conditions of participation in the NFIP, only those properties in a floodplain with a federally-backed mortgage are obligated to purchase flood insurance. BBER estimated the mortgage rate using the U.S. Census Bureau’s 2006-2008 American Community Survey (ACS) 3 Year Estimates as the proportion of households with a mortgage to the number of housing units. The mortgage rate was calculated for three Public Use Microdata Areas (PUMAS), 00603, 00604, and 00605, which are shown in Map 5.

“Grandfathering” a flood insurance policy allows a policy holder to enjoy lower insurance rates. A policy holder can grandfather by choosing to purchase flood insurance before, and maintaining continuous coverage after, the FIRM is released that re-classifies his or her property from outside to within a floodplain, or by proving that the property was built in compliance with its zone classification within the FIRM that was active at the time of construction. If a property owner opts to grandfather his or her property, the property essentially maintains its previous non-floodplain zone classification for insurance purposes, even though its physical zone classification changes with the new FIRM to a floodplain zone classification.

imagery from Google Earth to visually assess the fifty properties of highest value (the assumption being that parcels containing apartment buildings would have higher improvement values than those with single or multi-family houses). Those properties that appeared to be apartment buildings were then removed from the database (14 parcels were removed). Subsequently, the database was searched for names corresponding to those of the known apartment owners. Any additional apartment buildings thus identified were also removed.

Map 5: PUMAs Intersecting the Net New Floodplain



The policy available to those who grandfather during their first year of coverage is called the “Preferred Risk Policy” (PRP). PRP rates are the lowest available, even with combined building and contents coverage. (Unlike the other policies offered through NFIP, PRPs do not offer building only coverage.) During the second and subsequent years, a grandfathered policy is eligible for rates corresponding to non-floodplain Zone X (a low-risk classification not considered to be in the 100-year flood floodplain), which are slightly higher than the PRP rates, but substantially lower than the floodplain Zone A (high risk) rates that property owners will be forced to pay if they choose not to grandfather. BBER assumed varying grandfather rates in its estimates, which will be described in detail in the following discussion.

BBER classified each property as either pre- or post-FIRM based upon data available through the 2006-2008 ACS 3-Year Estimates. This database provides information on the year housing units were built by PUMA.¹³ A property is charged different rates based upon whether it is considered “pre-FIRM” or “post-FIRM”. A pre-FIRM building is one that was constructed¹⁴ before the release of the first FIRM for an NFIP-participating community. In the case of Bernalillo County, a pre-FIRM building would have been built before 1983.¹⁵

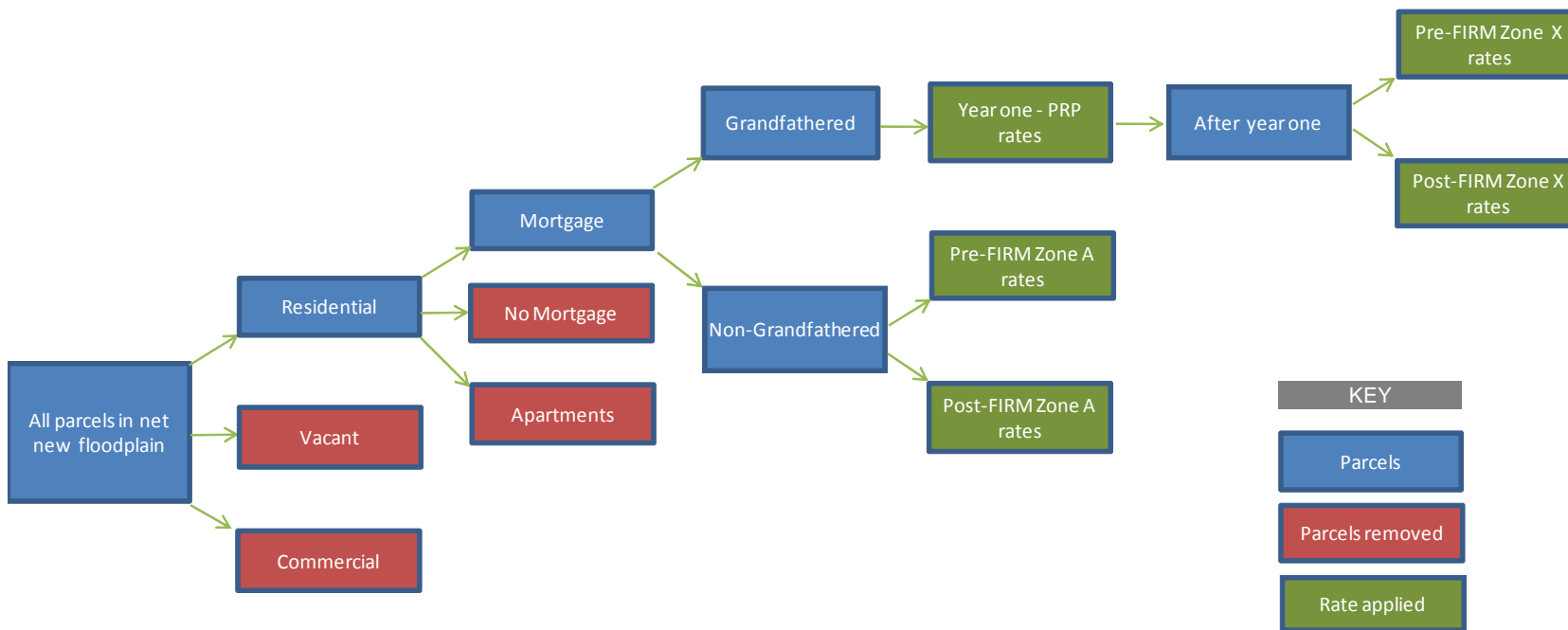
Figure 1 summarizes the steps BBER took in calculating the increased flood insurance costs.

¹³ For each PUMA, BBER divided the number of housing units built after 1979 (the closest year to 1983 – the year in which the first FIRM was produced available in the data, which is presented in decade increments) by the total number of housing units to come up with a post-FIRM rate that was applied to all the properties corresponding to the PUMA.

¹⁴ A pre-FIRM structure that is substantially damaged or improved needs to be re-assigned as post-FIRM. Since BBER had no way of determining how many or which of the properties in the Assessor’s database fell into this category, it was assumed that none had been re-classified.

¹⁵ See FEMA’s “Community Status Book Report” for New Mexico at <http://www.fema.gov/cis/NM.pdf>

Figure 1: Flood Insurance Cost Calculation Flowchart



At this point, BBER created three different sets of assumptions to correspond with three different estimates: a lower cost estimate, a higher cost estimate, and a “most likely” estimate. Each of the three estimates is based upon the following:

- Improvement values published in the Bernalillo County Assessor 2009 property tax database were used as a proxy for replacement values.
- The rates used are those published in the October 2009 edition of the FEMA Flood Insurance Manual (copies of the rate schedules can be found in the Appendix)
 - As Bernalillo County is in the “regular” National Flood Insurance Program,¹⁶ the rates used in the estimates correspond to this program type.
 - BBER used the pre- and post-FIRM rates for Zone A properties published in the manual.¹⁷
 - To account for the fact that the rates afforded those who grandfather changes between the first and subsequent years of coverage, BBER created two time-specific calculations: the first, called “initial year” calculations, used the PRP rates for that proportion of the total estimated to have chosen the grandfather option. For “subsequent year” calculations, the Zone X rates were applied to the proportion who grandfathered.¹⁸
 - The rates used were those that correspond to a single- to four-family house with no basement and one floor.¹⁹
 - The NFIP caps its coverage at \$250,000 for residential properties. Based upon BBER’s conversations with insurance agents, through which it was learned that a negligible number of property owners with homes valued at more than \$250,000 currently opt to purchase further coverage through other insurance providers, no extra coverage beyond the NFIP cap was considered in the estimates.
- Each property’s coverage amount was reduced by 20 percent to take into account NFIP’s minimum required coverage of 80 percent of the replacement cost of the property.²⁰

¹⁶ According to the Manual, “The Regular Program is the final phase of a community’s participation in the NFIP. In this phase, a Flood Insurance Rate Map is in effect and full limits of coverage are available.” (p. GR 1)

¹⁷ See the rates in Appendix B

¹⁸ The FEMA Flood Insurance Manual does not publish rates for PRPs. Instead, premiums for each class of building and contents coverage are provided. BBER created its own rate schedule for PRPs to use in our calculations by dividing the premium for each class by the total of the corresponding building and contents coverage, summed, and multiplying the result by 100. Both the published premiums from the manual and BBER’s calculated rates are shown in Appendix C.

¹⁹ The rates are the same for single-family and two- to four-family residential, as can be seen in the Appendix tables cited previously.

²⁰ According to an NFIP document published on Flood Smart.gov (NFIP’s official website), “the two most common reimbursement methods for flood claims are: Replacement Cost Value (RCV) and Actual Cash

- With the exception of those parcels receiving PRPs, which are not eligible, each property's coverage amount was reduced by an additional 5 percent to correspond to the discount for which properties in Bernalillo County are eligible due to the County's participation in the Community Rating System.²¹
- Additional coverage called "Increased Cost of Compliance" (ICC) coverage is also required for those policies included in the present analysis.²² Coverage levels vary by policy type, the amount of coverage purchased, zone classification, and FIRM status.²³ BBER included the cost of this coverage in its estimates in keeping with the manual's instructions.
- Finally, the Federal Policy Fee (FPF) was added to the coverage amounts in keeping with the manual's instructions.²⁴

As stated earlier, BBER created three different cost estimates based upon various combinations of these factors. The first calculation, the lower cost estimate, assumes the following: 1) the number of property owners who choose to grandfather will be 25 percent;²⁵ 2) no property owner will opt for more than the minimum required building only coverage (therefore, no contents coverage

Value (ACV). The RCV is the cost to replace damaged property. It is reimbursable to owners of single-family, primary residences insured to within 80 percent of the building's replacement cost. All other buildings and personal property . . . are valued at ACV. The ACV is the RCV at the time of loss minus physical depreciation." (www.floodsmart.gov/floodsmart/pages/about/coverage_from_nfip.jsp). BBER assumed the majority of the residences in the affected parcels would be single-family, and that the property owners would choose to insure only up to 80 percent of the replacement value of the home.

²¹ "The National Flood Insurance Program's . . . Community Rating System . . . is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements." (<http://www.fema.gov/business/nfip/crs.shtml>)

²² The ICC premium is intended to cover "the increased cost to rebuild, or otherwise alter, a flood-damaged structure to bring it into conformance with State or local floodplain management ordinances or laws". The following are not required to purchase this additional coverage: (1) policies "sold in Emergency Program communities, (2) contents-only policies, (3) Dwelling Forms on individual condominium units, and (4) Group Flood Insurance." (FEMA Flood Insurance Manual, October 2009, p. RATE 14)..

²³ PRP rates include an ICC premium of \$6. For non-PRP policies, those with coverage up to \$230,000 for post-FIRM properties in Zones A or X pay an additional \$6 for ICC coverage, while their pre-FIRM counterparts in Zone A pay an additional \$75 and those in Zone X pay \$6. Post-FIRM properties with coverage over \$230,000 pay an additional \$4 in both Zones A and X, while pre-FIRM properties in the same coverage bracket pay \$60 if located in Zone A and \$4 if in Zone X.

²⁴ PRP rates include a \$13 FPF, while all other coverage classes require an additional \$35 FPF be added to the total policy cost. BBER therefore added the fee to the non-PRP policies.

²⁵ BBER based this estimate upon NFIP statistics that showed 25 percent of the policies in the state of New Mexico were classified as Zone X properties; this group could logically consist of only two sets of property owners: those who opt to purchase flood insurance despite their non-floodplain status ("opters"), and those who grandfathered. Since insurance agents informed us that it is very uncommon for property owners to purchase flood insurance when they are not required to, this estimate is based upon the assumption that all of the Zone X policies in the NFIP data are grandfathered policies. (While NFIP staff members with whom BBER spoke did not disagree with BBER's assumption about what constituted the Zone X totals, they could not confirm it, because the data from which the NFIP compiles its statistics do not include information that would make it possible to identify or differentiate between grandfathered, opter, or other potential types of policy holders.

cost is included in the estimate); and 3) everyone will choose the highest possible deductible, \$5,000.

The second estimate, the higher cost estimate, is based upon these assumptions: 1) a grandfathering rate of 10 percent;²⁶ 2) all property owners will choose to purchase contents coverage on top of the building only coverage at the standard rates corresponding to building coverage; and 3) all property owners will choose the standard deductible rate.²⁷

The third estimate, which is called the most likely estimate (based upon our belief that the assumptions behind the estimate are the most likely ones to occur if Bernalillo County's levees are not accredited, as informed by our research), assumes the following: 1) 16 percent of the property owners will choose to grandfather ;²⁸ 2) 20 percent will choose to purchase contents coverage in addition to the required building coverage,²⁹ and 3) the majority of property owners will choose a deductible higher than the standard deductible.³⁰

The assumptions behind each estimate are summarized in Table 6.

²⁶ This rate is based upon an estimate given to BBER by a staff member of the Bernalillo County Public Works department of the percent of the county's South Valley residents who opted to grandfather when the last FIRM was released there. According to the staff member, there was very little promotion of the option before the FIRM was released.

²⁷ \$1,000 for Zone X pre- or post-FIRM and for Zone A post-FIRM, \$2,000 for Zone A pre-FIRM

²⁸ This figure was calculated using NFIP statistics for New Mexico. The data available included the number of PRPs and the number of Zone X policies. As discussed in footnote 26, BBER assumed that the Zone X policies include both grandfathered and opter policies. It follows that the PRPs would be included in the Zone X policies, and that the PRP category would also include both grandfather and opter policies (since only property owners who are in the first year of their grandfathered policy, or those who purchase flood insurance when they are not located in a flood zone, are able to purchase a PRP). The difference between the Zone X policies and the PRP, then, should consist of only grandfathered policies in at least the second year of their insurance agreement (since grandfathered rates move from PRP in the first year to Zone X standard rates in subsequent years). Therefore, for the most likely estimate, BBER assumed that all of the difference between Zone X policies and PRPs were grandfathered policies, and half of the PRPs were also grandfathered. The two were summed and then divided by the total number of policies in force in New Mexico to arrive at a grandfathering percentage of 15.7.

²⁹ The NFIP provided BBER with a breakdown of current policies in Bernalillo County by coverage type (building only, contents only, and building and contents). According to this data, 58 percent of policies have building only coverage, 41 percent have building and contents, and 1 percent has contents only. Since the data was not broken down beyond the type of coverage, it was not possible to determine which types of policies chose which type of coverage. BBER assumed that the percentage of policy holders who would choose to add contents coverage would be less than the 41 percent rate for the county because insurance agents told us the majority (one agent said 99 percent) of their customers choose building only coverage. (According to the insurance agents BBER spoke to, customers of theirs who were forced to purchase flood insurance opt for the cheapest possible policy because they do not feel it is necessary and/or they resent being forced to purchase it.). Therefore, BBER split the difference and assumed 20 percent of the new policies would include contents coverage. The 20 percent is in addition to the contents coverage already included in the PRPs (recall that building only coverage is not available for PRPs).

³⁰ While BBER was told by insurance agents that most policy holders would prefer the highest possible deductible (\$5,000), many mortgage companies do not allow the mortgage holder to choose a higher deductible than the standard deductible. Therefore, BBER chose to use an increased deductible of \$3,000 because this amount fell between these two ends of the spectrum. It should be noted that Zone X standard rate policies are not eligible for deductibles different from the standard rate, so the most likely estimate for the grandfathered policies did not include a discount in either the first year or the subsequent year calculations.

Table 6: Assumptions behind Cost Estimates

	Lower Cost Estimate	Most Likely Estimate	Higher Cost Estimate
Grandfathering Rate	25%	17%	10%
Type of Coverage	Building only (all policies)	Building only (80 percent of policies) Building and contents (20 percent of policies)	Building and contents (all policies)
Deductible	\$5,000	\$3,000	\$1,000/\$2,000 ¹

¹ \$1,000 for Zone X pre- or post-FIRM and for Zone A post-FIRM, \$2,000 for Zone A pre-FIRM

Flood Insurance Cost Estimates

BBER estimated the increased cost of flood insurance for those parcels located in the floodplain that would result from the anticipated levee non-accreditation in Bernalillo County will range from \$4.2 million in the first year and \$5.3 million a year thereafter in flood insurance premiums on the low end, and \$8.0 million in the first year and \$8.7 million a year thereafter on the high end, with the most likely cost being about \$5.5 million in the first year and \$6.2 million a year thereafter. Table 7 shows flood insurance cost estimates under the 3 scenarios by coverage class.

Looking at the costs across the three different estimates, it is clear that the percentage of policies that grandfather and the deductible chosen make a substantial difference, especially in the first year, when these policies receive the PRP. The difference in the first year between the lower cost and most likely cost for building only coverage estimates is 18 percent (\$4.2 million compared to \$5.1 million), while in the subsequent year it drops to eight percent. More noticeably, the cost for building only coverage for the first year using the higher cost estimate assumptions is 28 percent higher than the lower cost estimate, dropping to 15 percent in subsequent years.

Table 7: Flood Insurance Cost Estimates by Coverage Class

Building Coverage Class	LOWER COST ESTIMATE		MOST LIKELY COST ESTIMATE						HIGHER COST ESTIMATE						Contents Coverage Class
	Building Only ¹		Building Only ¹		Contents Only ²		Total		Building Only ¹		Contents Only ²		Total		
	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	
\$1 - \$20,000	\$21,251	\$24,742	\$24,077	\$26,266	\$521	\$649	\$24,597	\$26,915	\$26,045	\$27,442	\$2,779	\$3,189	\$28,825	\$30,631	\$1 - \$8,000
\$20,001 - \$30,000	\$33,648	\$39,154	\$38,877	\$42,330	\$2,194	\$2,730	\$41,071	\$45,059	\$42,919	\$45,121	\$11,709	\$13,417	\$54,628	\$58,538	\$8,001 - \$12,000
\$30,001 - \$50,000	\$263,887	\$314,385	\$309,678	\$341,347	\$20,118	\$25,053	\$329,795	\$366,400	\$346,164	\$366,363	\$107,363	\$123,101	\$453,527	\$489,464	\$12,001 - \$20,000
\$50,001 - \$75,000	\$527,203	\$643,197	\$627,065	\$699,810	\$44,845	\$55,813	\$671,910	\$755,623	\$706,021	\$752,419	\$239,324	\$274,303	\$945,345	\$1,026,722	\$20,001 - \$30,000
\$75,001 - \$100,000	\$483,483	\$599,393	\$580,532	\$653,224	\$43,918	\$54,661	\$624,450	\$707,885	\$657,451	\$703,816	\$234,376	\$268,638	\$891,828	\$972,453	\$30,001 - \$40,000
\$100,001 - \$125,000	\$412,182	\$516,879	\$498,642	\$564,302	\$38,772	\$48,293	\$537,415	\$612,596	\$568,172	\$610,051	\$206,917	\$237,280	\$775,090	\$847,331	\$40,001 - \$50,000
\$125,001 - \$150,000	\$387,612	\$490,072	\$471,348	\$535,605	\$37,364	\$46,555	\$508,712	\$582,160	\$539,102	\$580,086	\$199,404	\$228,714	\$738,506	\$808,800	\$50,001 - \$60,000
\$150,001 - \$200,000	\$617,408	\$790,896	\$755,296	\$864,098	\$61,948	\$77,115	\$817,244	\$941,213	\$864,799	\$934,195	\$330,601	\$378,969	\$1,195,400	\$1,313,164	\$60,001 - \$80,000
\$200,001 - \$249,999	\$424,534	\$548,540	\$522,161	\$599,929	\$43,504	\$54,178	\$565,665	\$654,108	\$600,276	\$649,878	\$232,169	\$266,210	\$832,445	\$916,089	\$80,001 - \$99,999
\$250,000	\$1,041,720	\$1,341,121	\$1,284,199	\$1,471,965	\$103,990	\$129,894	\$1,388,188	\$1,601,859	\$1,488,800	\$1,608,560	\$554,963	\$637,573	\$2,043,763	\$2,246,133	\$100,000
Total	\$4,212,928	\$5,308,379	\$5,111,874	\$5,798,876	\$397,174	\$494,942	\$5,509,048	\$6,293,817	\$5,839,750	\$6,277,931	\$2,119,606	\$2,431,395	\$7,959,356	\$8,709,326	Total

¹ In the initial year estimates, building and contents coverage are combined for that proportion of the total who grandfathered because PRPs are not available as building only coverage.

² The initial year estimates for contents only coverage do not include PRP because this coverage was counted in the building only portion.

The \$250,000 building coverage class represents the largest share of the estimated cost under each scenario and across all types of coverage, at about 25 percent of the total cost. What makes up this large proportion is the amount of insurance coverage bought and not the number of policies, as the \$250,000 class has only about 12 percent of the policies. Contents only coverage makes up between two percent and eight percent of the total cost for the most likely cost estimate and between ten percent and 28 percent of total cost for the higher cost estimate.

Looking at each estimate individually, the difference between the initial year and subsequent year costs are most dramatic in the lower cost estimate, where the cost goes up 26 percent after the first year; the differences steadily decrease with each of the higher cost estimates (in the most likely cost estimate, the difference between time periods is 14 percent, and in the total higher cost estimate, nine percent). The higher cost estimate already assumes a lower grandfather rate than the other estimates and isn't affected as much when the first year grandfather policies change insurance classification from PRP to the Standard Risk Policy.

Table 8 shows flood insurance cost estimates under the three scenarios by PUMA. PUMA 00604, which covers parcels in the middle third of the net new floodplain between Montano Road to the north and Bridge Boulevard to the south (see Map 5), represents the largest share of estimated cost under each scenario and across all types of coverage, making up between 45 and 49 percent of the total. This PUMA also accounts for about 45 percent of the total policies. PUMA 00603, which includes parcels in the northern third of the net new floodplain, between the northern border of Bernalillo County and I-40, represents between 34 percent and 37 percent of estimated costs, but accounts for only about 26 percent of policies. This reflects the disparity of home values (replacement costs) between the two PUMAs. PUMA 00605 includes the smallest share of the cost, despite containing more policies than PUMA 00604 (29 percent), reflecting the lower home values within this area (south of Bridge Boulevard to the southern border of Bernalillo County).

Table 8: Flood Insurance Cost Estimates by PUMA

PUMA	LOWER COST ESTIMATE		MOST LIKELY COST ESTIMATE						HIGHER COST ESTIMATE					
	Building Only ¹		Building Only ¹		Contents Only ²		Total		Building Only ¹		Contents Only ²		Total	
	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years	Initial Year	Subsequent Years
00603	\$1,505,877	\$1,902,360	\$1,848,324	\$2,096,974	\$135,992	\$170,836	\$1,984,316	\$2,267,810	\$2,162,059	\$2,320,652	\$725,753	\$836,872	\$2,887,811	\$3,157,523
00604	\$1,922,264	\$2,442,530	\$2,324,504	\$2,650,784	\$194,527	\$240,928	\$2,519,032	\$2,891,713	\$2,610,763	\$2,818,870	\$1,038,136	\$1,186,114	\$3,648,899	\$4,004,983
00605	\$784,787	\$963,489	\$939,046	\$1,051,117	\$66,655	\$83,177	\$1,005,701	\$1,134,294	\$1,066,929	\$1,138,409	\$355,717	\$408,409	\$1,422,646	\$1,546,819
Total	\$4,212,928	\$5,308,379	\$5,111,874	\$5,798,876	\$397,174	\$494,942	\$5,509,048	\$6,293,817	\$5,839,750	\$6,277,931	\$2,119,606	\$2,431,395	\$7,959,356	\$8,709,326

¹ In the initial year estimates, building and contents coverage are combined for that proportion of the total who grandfathered because PRPs are not available as building only coverage.

² The initial year estimates for contents only coverage do not include PRP because this coverage was counted in the building only portion.

Appendices

Appendix A: Definitions of FEMA Flood Zone Designations

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. These zones are depicted on a community's Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map. Each zone reflects the severity or type of flooding in the area.

Moderate to Low Risk Areas

In communities that participate in the NFIP, flood insurance is available to all property owners and renters in these zones:

ZONE	DESCRIPTION
B and X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
C and X (unshaded)	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

High Risk Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

ZONE	DESCRIPTION
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations (BFEs) are shown within these zones.
AE	The base floodplain where BFEs are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.

A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. BFEs derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or BFEs are shown within these zones.

High Risk - Coastal Areas

In communities that participate in the NFIP, mandatory flood insurance purchase requirements apply to all of these zones:

ZONE	DESCRIPTION
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No BFEs are shown within these zones.
VE, V1 - 30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. BFEs derived from detailed analyses are shown at selected intervals within these zones.

Undetermined Risk Areas

ZONE	DESCRIPTION
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

Source: FEMA.

<http://www.msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%20Flood%20Zone%20Designations>

Appendix B: NFIP Insurance Rates

Figure B1: Pre-FIRM Rates for Zones A and X

TABLE 2. REGULAR PROGRAM -- PRE-FIRM CONSTRUCTION RATES^{1, 2}
ANNUAL RATES PER \$100 OF COVERAGE
(Basic/Additional)

OCCUPANCY		Single Family		2-4 Family		Other Residential		Non-Residential	
		Building	Contents	Building	Contents	Building	Contents	Building	Contents
BUILDING TYPE	No Basement/Enclosure	.76 / .57	.96 / 1.03	.76 / .57		.76 / 1.19		.83 / 1.14	
	With Basement	.81 / .84	.96 / .86	.81 / .84		.76 / .99		.88 / 1.12	
	With Enclosure	.81 / 1.02	.96 / 1.03	.81 / 1.02		.81 / 1.25		.88 / 1.41	
	Elevated on Crawlspace	.76 / .57	.96 / 1.03	.76 / .57		.76 / 1.19		.83 / 1.14	
	Non-Elevated with Subgrade Crawlspace	.76 / .57	.96 / .86	.76 / .57		.76 / 1.19		.83 / 1.14	
	Manufactured (Mobile) Home ³	.76 / .57	.96 / 1.03					.83 / 1.14	
CONTENTS LOCATION	Basement & Above ⁴				.96 / .86		.96 / .86		1.62 / 1.92
	Enclosure & Above ⁵				.96 / 1.03		.96 / 1.03		1.62 / 2.30
	Lowest Floor Only - Above Ground Level				.96 / 1.03		.96 / 1.03		1.62 / 1.01
	Lowest Floor Above Ground Level and Higher Floors				.96 / .71		.96 / .71		1.62 / .86
	Above Ground Level - More than One Full Floor				.35 / .13		.35 / .13		.24 / .13
	Manufactured (Mobile) Home ³								1.62 / 1.01

FIRM ZONES A99, B, C, X

OCCUPANCY		Single Family		2-4 Family		Other Residential		Non-Residential	
		Building	Contents	Building	Contents	Building	Contents	Building	Contents
BUILDING TYPE	No Basement/Enclosure	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	With Basement	.89 / .30	1.36 / .43	.89 / .30		.95 / .30		.95 / .30	
	With Enclosure	.89 / .34	1.36 / .49	.89 / .34		.95 / .34		.95 / .34	
	Elevated on Crawlspace	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	Non-Elevated with Subgrade Crawlspace	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	Manufactured (Mobile) Home ³	.78 / .38	1.20 / .37					.95 / .39	
CONTENTS LOCATION	Basement & Above ⁴				1.53 / .56		1.53 / .56		1.58 / .61
	Enclosure & Above ⁵				1.53 / .65		1.53 / .65		1.58 / .73
	Lowest Floor Only - Above Ground Level				1.20 / .59		1.20 / .59		.97 / .43
	Lowest Floor Above Ground Level and Higher Floors				1.20 / .37		1.20 / .37		.97 / .31
	Above Ground Level - More than One Full Floor				.35 / .12		.35 / .12		.22 / .12
	Manufactured (Mobile) Home ³								.85 / .53

¹ Start of construction or substantial improvement on or before 12/31/74, or before the effective date of the initial Flood Insurance Rate Map (FIRM). If FIRM Zone is unknown, use rates for Zones A, AE, A1-A30, AO, AH, D.

² Pre-FIRM buildings with subgrade crawlspaces that are below the Base Flood Elevation (BFE) may use optional Post-FIRM elevation rating. Follow the procedures from the Specific Rating Guidelines for policy processing.

³ The definition of Manufactured (Mobile) Home includes travel trailers. See page APP 3.

⁴ Includes subgrade crawlspace.

⁵ Includes crawlspace.

Source: FEMA National Flood Insurance Program Flood Insurance Manual (October 2009 revised edition), p. RATE 2.

Figure B2: Post-FIRM Rates for Zone A

TABLE 3C. REGULAR PROGRAM -- POST-FIRM CONSTRUCTION RATES
ANNUAL RATES PER \$100 OF COVERAGE
(Basic/Additional)

UNNUMBERED ZONE A -- WITHOUT
BASEMENT/ENCLOSURE/CRAWLSPACE^{1,6}

Elevation Difference to nearest foot	BUILDING RATES		CONTENTS RATES		TYPE OF ELEVATION CERTIFICATE
	Occupancy		Occupancy		
	1-4 Family	Other & Non-Residential	Residential ²	Non-Residential ²	
+5 or more	.35 / .10	.47 / .15	.61 / .12	.64 / .12	NO ESTIMATED BASE FLOOD ELEVATION ³
+2 to +4	1.08 / .13	.99 / .20	.86 / .17	.97 / .23	
+1	2.07 / .63	2.23 / .74	1.52 / .56	1.45 / .71	
0 or below	***	***	***	***	
+2 or more	.40 / .08	.33 / .09	.50 / .12	.48 / .12	WITH THE ESTIMATED BASE FLOOD ELEVATION ⁴
0 to +1	1.05 / .12	.90 / .18	.84 / .16	.83 / .21	
-1	3.45 / 1.29	4.37 / 1.01	2.68 / .69	2.18 / 1.01	
-2 or below	***	***	***	***	
No Elevation Certificate ⁵	4.02 / 1.41	5.45 / 1.68	3.33 / .99	3.21 / 1.34	No Elevation Certificate

¹ Zone A building with basement/enclosure/crawlspace/subgrade crawlspace – Submit for Rating.

² For elevation rated risks other than Single Family, when contents are located one floor or more above lowest floor used for rating – use .35 / .12.

³ Elevation difference is the measured distance between the highest adjacent grade next to the building and the lowest floor of the building.

⁴ Elevation difference is the measured distance between the estimated BFE provided by the community or registered professional engineer, surveyor, or architect and the lowest floor of the building.

⁵ For building without basement, enclosure, or crawlspace, Elevation Certificate is optional.

⁶ Pre-FIRM buildings with basement/enclosure/crawlspace/subgrade crawlspace may use this table if the rates are more favorable to the insured.

*** SUBMIT FOR RATING

Source: FEMA National Flood Insurance Program Flood Insurance Manual (October 2009 revised edition), p. RATE 5.

Figure B3: Post-FIRM Rates for Zone X

TABLE 3A. REGULAR PROGRAM -- POST-FIRM CONSTRUCTION RATES
ANNUAL RATES PER \$100 OF COVERAGE
(Basic/Additional)
FIRM ZONES A99, B, C, X

OCCUPANCY		Single Family		2-4 Family		Other Residential		Non-Residential	
		Building	Contents	Building	Contents	Building	Contents	Building	Contents
BUILDING TYPE	No Basement/Enclosure	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	With Basement	.89 / .30	1.36 / .43	.89 / .30		.95 / .30		.95 / .30	
	With Enclosure	.89 / .34	1.36 / .49	.89 / .34		.95 / .34		.95 / .34	
	Elevated on Crawlspace	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	Non-Elevated with Subgrade Crawlspace	.78 / .21	1.20 / .37	.78 / .21		.74 / .21		.74 / .21	
	Manufactured (Mobile) Home ¹	.78 / .38	1.20 / .37					.95 / .39	
CONTENTS LOCATION	Basement & Above ⁵				1.53 / .56		1.53 / .56		1.58 / .61
	Enclosure & Above ⁶				1.53 / .65		1.53 / .65		1.58 / .73
	Lowest Floor Only - Above Ground Level				1.20 / .59		1.20 / .59		.97 / .43
	Lowest Floor Above Ground Level and Higher Floors				1.20 / .37		1.20 / .37		.97 / .31
	Above Ground Level - More than One Full Floor				.35 / .12		.35 / .12		.22 / .12
	Manufactured (Mobile) Home ¹								.85 / .53

¹ The definition of Manufactured (Mobile) Home includes travel trailers. See page APP 3.

⁵ Includes subgrade crawlspace.

⁶ Includes crawlspace.

Source: FEMA National Flood Insurance Program Flood Insurance Manual (October 2009 revised edition), p. 3.

Figure B4: Premiums for Preferred Risk Policies

PRP COVERAGES AVAILABLE EFFECTIVE MAY 1, 2008

ONE- TO FOUR-FAMILY RESIDENTIAL BUILDING AND CONTENTS COVERAGE COMBINATIONS^{1, 2, 3}

With Basement or Enclosure ⁵			Without Basement or Enclosure ⁶		
Building	Contents	Premium	Building	Contents	Premium
\$ 20,000	\$ 8,000	\$144	\$ 20,000	\$ 8,000	\$119
\$ 30,000	\$ 12,000	\$173	\$ 30,000	\$ 12,000	\$148
\$ 50,000	\$ 20,000	\$221	\$ 50,000	\$ 20,000	\$196
\$ 75,000	\$ 30,000	\$260	\$ 75,000	\$ 30,000	\$230
\$100,000	\$ 40,000	\$287	\$100,000	\$ 40,000	\$257
\$125,000	\$ 50,000	\$307	\$125,000	\$ 50,000	\$277
\$150,000	\$ 60,000	\$326	\$150,000	\$ 60,000	\$296
\$200,000	\$ 80,000	\$361	\$200,000	\$ 80,000	\$326
\$250,000	\$100,000	\$388	\$250,000	\$100,000	\$348

¹Add the \$50.00 Probation Surcharge, if applicable.

²Premium includes Federal Policy Fee of \$13.00.

³Premium includes ICC premium of \$6.00. Deduct this amount if the risk is a condominium unit.

Source: FEMA National Flood Insurance Program Flood Insurance Manual (October 2009 revised edition), p. PRP 4.

Table B1: Calculated Rates for Preferred Risk Policies

PREFERRED RISK POLICY CALCULATED RATES	
Sum of Published Building and Contents Coverage	Calculated Rate (Premium / Sum of B&C x 100)
\$28,000	0.43
\$42,000	0.35
\$70,000	0.28
\$105,000	0.22
\$140,000	0.18
\$175,000	0.16
\$210,000	0.14
\$280,000	0.12
\$350,000	0.10

Source: FEMA National Flood Insurance Program Flood Insurance Manual (October 2009 revised edition), p. PRP 4. Calculations by UNM-BBER, 2010.