

spread uniformly across all borrower classes—in particular, it argues that the HMDA data exclude relatively more loans made to minorities and lower-income families.

¹⁸⁹ Bunce and Scheessele (1998) contained a comparison (Table A.1) of HMDA-reported and GSE-reported data on the characteristics of GSE mortgage purchases in 1996. In most cases the differences between the results utilizing the two different data sources were minimal, but in some cases (such as lending in underserved areas) the evidence lent some support to Fannie Mae's assertion that the HMDA data underreports their level of activity. The discrepancies between HMDA data and GSE data at the national level are also due to the seasonal loan effect (see Section E.2.e above and Table A.4a).

¹⁹⁰ John E. Lind. *Community Reinvestment and Equal Credit Opportunity Performance of Fannie Mae and Freddie Mac from the 1994 HMDA Data*. San Francisco: Caniccor. Report, (February 1996).

¹⁹¹ John E. Lind. *A Comparison of the Community Reinvestment and Equal Credit Opportunity Performance of Fannie Mae and Freddie Mac Portfolios by Supplier from the 1994 HMDA Data*. San Francisco: Caniccor. Report, (April 1996).

¹⁹² Brent W. Ambrose and Anthony Pennington-Cross, *Spatial Variation in Lender Market Shares*, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹³ Heather MacDonald. "Expanding Access to the Secondary Mortgage Markets: The Role of Central City Lending Goals," *Growth and Change*. (27), (1998), pp. 298–312.

¹⁹⁴ Heather MacDonald, *Fannie Mae and Freddie Mac in Non-metropolitan Housing Markets: Does Space Matter*, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹⁵ Kirk McClure, *The Twin Mandates Given to the GSEs: Which Works Best, Helping Low-Income Homebuyers or Helping Underserved Areas in the Kansas City Metropolitan Area?* Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹⁶ Richard Williams, *The Effect of GSEs, CRA, and Institutional Characteristics on Home Mortgage Lending to Underserved Markets*, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹⁷ Joseph Gyourko and Dapeng Hu. *The Spatial Distribution of Secondary Market Purchases in Support of Affordable Lending*, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹⁸ Bradford Case and Kevin Gillen. *Studies of Mortgage Purchases by Fannie Mae and Freddie Mac: Spatial Variation in GSE Mortgage Purchase Activity*. Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

¹⁹⁹ The coefficient for geographic targeting was significant and negative in 19 MSAs, significant and positive in another eight, and not significant in the remaining 17 MSAs.

²⁰⁰ The coefficient for the highest minority-concentration category (census tracts with greater than 50% minority population) was significantly negative in 21 MSAs, but significantly positive in 10 MSAs and not significantly different from zero in the remaining 13.

²⁰¹ Samuel L. Myers, Jr. *The Effects of Government-Sponsored Enterprise Secondary Market Decisions on Racial Disparities in Loan Rejection Rates*. Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development, (1999).

²⁰² Variables from the GSE Public Use Data Base include the income and gender of the borrower, the gender and race of the coborrower, first-time homebuyer, and loan amount. Variables from Census 1990 include the following information for the census tract in which the property is located: percent of owner-occupied houses, average size of household, average number of persons per owner-occupied house, average number of persons per renter-occupied unit, percentage of white, black, Asian, American Indian, and other minority households, average poverty rate, median monthly rent, median house value, percent of persons 65 or older, percent of persons under 18, and percent of female-headed households. Variables from HMDA include reason for denial, whether or not loan is sold to GSE, type of loan (conventional), type of agency, and origination year.

²⁰³ The unconditional probability that a loan will not be sold, P(NS), to a GSE is computed using Bayes' rule. It is based on the conditional probability that a loan is sold to GSEs given that it was originated, P(SO), and the probability that a loan is originated which are obtained using HMDA data. The unconditional probability that a loan will be sold to a GSE can not be obtained from either the HMDA data which does not include details of which loans were sent for review and which were declined by the secondary purchaser—or from the HUD-GSE data, which only includes approved loans. However, we know from Bayes' rule that

$$P(S|O) = \frac{P(S)P(O|S)}{P(O)}$$

where S mean that the loan was sold and O means that the loan was originated and where all loan sold by the lender must have been originated such that P(OS)=1. We can obtain a measure of the unconditional probability that a loan will not be sold from

$$P(NS) = 1 - P(S) = 1 - P(S|O)P(O)$$

²⁰⁴ Calvin Bradford, *The Patterns of GSE Participation in Minority and Racially Changing Markets Reviewed from the Context of the Levels of Distress Associated with High Levels of FHA Lending*, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development (2000).

²⁰⁵ David M. Harrison, Wayne R. Archer, David C. Ling, and Marc T. Smith, *Mitigating*

Information Externalities in Mortgage Markets: The Role of Government Sponsored Enterprises, Research Study submitted to the Office of Policy Development and Research, Department of Housing and Urban Development (2000).

²⁰⁶ Kenneth Temkin, Roberto Quercia, George Galster and Sheila O'Leary. *A Study of the GSEs' Single Family Underwriting Guidelines: Final Report*. Washington DC: U.S. Department of Housing and Urban Development, (April 1999).

²⁰⁷ In following up on the Urban Institute study, HUD began in February 2000 a review of Fannie Mae's and Freddie Mac's automated underwriting systems.

²⁰⁸ Standard guidelines refer to guidelines not associated with affordable lending programs.

²⁰⁹ Temkin, et al. (1999), p. 4.

²¹⁰ Temkin, et al. (1999), p. 5.

²¹¹ Temkin, et al. (1999), p. 28.

²¹² Senate Report 102–282, (May 15, 1992), p. 35.

²¹³ Table A.7a(A.7b) considers GSE purchases during 1997, 1998, and 1999 (1998 and 1999) of conventional mortgages that were originated during 1997 (1998). HUD's methodology for deriving the market estimates is explained in Appendix D. B&C loans have been excluded from the market estimates in Table A.7.

²¹⁴ Two caveats about the data in Table A.7 should be mentioned here. First, the various market totals for underserved areas are probably understated due to the model's underestimation of mortgage activity in non-metropolitan underserved counties and of manufactured housing originations in non-metropolitan areas. Second, as discussed in Appendix D, some uncertainty exists around the adjustment for B&C single-family owner loans.

²¹⁵ Table A.7a shows that multifamily represented 19 percent of total units financed during 1997 (obtained by dividing 1,393,677 multifamily units by 7,306,950 "Total Market" units). Increasing the single-family-owner number in Table A.7 by 732,182 to account for excluded B&C mortgages increases the "Total Market" number to 8,039,132 which is consistent with the percent multifamily share reported in the text. See Appendix D for discussion of the B&C market.

²¹⁶ A similar imbalance is evident with regard to figures on the stock of mortgage debt published by the Federal Reserve Board. Within the single-family mortgage market the GSEs held loans or guarantees with an unpaid principal balance (UPB) of \$1.5 trillion, comprising 36 percent of \$4.0 trillion in outstanding single-family mortgage debt as of the end of 1997. At the end of 1997, the GSEs direct holdings and guarantees of \$41.4 billion represented 13.7 percent of \$301 billion in multifamily mortgage debt outstanding. (*Federal Reserve Bulletin*, June 1998, A 35.)

²¹⁷ The problem of secondary market "adverse selection" is described in James R. Follain and Edward J. Szymanoski. "A Framework for Evaluating Government's Evolving Role in Multifamily Mortgage Markets," *Cityscape: A Journal of Policy Development and Research* 1(2), (1995).

²¹⁸ A jumbo mortgage is one for which the loan amount exceeds the maximum principal amount for mortgages purchased by the enterprises—\$240,000 for mortgages on 1-unit properties in 1999, with limits that are 50 percent higher in Alaska, Hawaii, Guam, and the Virgin Islands.

²¹⁹ Office of Federal Housing Enterprise Oversight, *1998 Report to Congress*, (June 15, 1998), Figure 9, p. 32; and unpublished OFHEO estimates for 1998.

²²⁰ Mortgage originations for 1997 were reported in the Department of Housing and Urban Development, *HUD Survey of Mortgage Lending Activity: Fourth Quarter/Annual 1997*, (September 24, 1998).

²²¹ The underwriting guidelines published by the two GSEs are similar in most aspects. And since November 30, 1992, Fannie Mae and Freddie Mac have provided lenders the same *Uniform Underwriting and Transmittal Summary* (Fannie Mae Form 1008/Freddie Mac Form 1077), which is used by originators to collect certain mortgage information that they need for data entry when mortgages are sold to either GSE.

²²² Freddie Mac stock was not publicly traded until after the passage of the Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA), thus it is not possible to calculate a 10-year annualized rate of return.

²²³ *Fortune*, (April 17, 2000), pp. F-1, F-2.

²²⁴ *Business Week*, (March 27, 2000), p. 197.

²²⁵ U.S. Department of Housing and Urban Development. *Rental Housing Assistance—The Worsening Crisis: A Report to Congress on Worst Case Housing Needs*. (March 2000).

²²⁶ Standard & Poor's DRI, *The U.S.*

Economy, (June 2000), p. 56.

²²⁷ See Drew Schneider and James Follain, "A New Initiative in the Federal Housing Administration's Office of Multifamily Housing Programs: An Assessment of Small Projects Processing," *Cityscape: A Journal of Policy Development and Research* 4(1), (1998), pp. 43-58.

²²⁸ Senate Report 102-282, (May 15, 1992), p. 36.

²²⁹ "Final Report of Standard & Poor's to the Office of Federal Housing Enterprise Oversight (OFHEO)," (February 3, 1997), p. 10.

²³⁰ However, the Department's goals for the GSEs have been set so that they will be feasible even under less favorable conditions in the housing market.

²³¹ Another area where stepped-up GSE involvement could benefit low- and moderate-income families is lending for the rehabilitation of properties, which is especially needed in our urban areas. The GSEs have made some efforts in this complex area, but the benefits of stepped-up roles by the GSE could be sizable.

Appendix B—Departmental Considerations to Establish the Central Cities, Rural Areas, and Other Underserved Areas Goal

A. Introduction and Response to Comments

1. Establishment of Goal

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992

(FHEFSSA) requires the Secretary to establish an annual goal for the purchase of mortgages on housing located in central cities, rural areas, and other underserved areas (the "Geographically Targeted Goal").

In establishing this annual housing goal, Section 1334 of FHEFSSA requires the Secretary to consider:

1. Urban and rural housing needs and the housing needs of underserved areas;
2. Economic, housing, and demographic conditions;
3. The performance and effort of the enterprises toward achieving the Geographically Targeted Goal in previous years;
4. The size of the conventional mortgage market for central cities, rural areas, and other underserved areas relative to the size of the overall conventional mortgage market;
5. The ability of the enterprises to lead the industry in making mortgage credit available throughout the United States, including central cities, rural areas, and other underserved areas; and
6. The need to maintain the sound financial condition of the enterprises.

Organization of Appendix. The remainder of Section A first defines the Geographically Targeted Goal for both metropolitan areas and nonmetropolitan areas and then discusses HUD's response to the public comments raised in this appendix. Sections B and C address the first two factors listed above, focusing on findings from the literature on access to mortgage credit in metropolitan areas (Section B) and in nonmetropolitan areas (Section C). Separate discussions are provided for metropolitan and nonmetropolitan (rural) areas because of differences in the underlying markets and the data available to measure them. Section D discusses the past performance of the GSEs on the Geographically Targeted Goal (the third factor) and Sections E-G report the Secretary's findings for the remaining factors. Section H summarizes the Secretary's rationale for setting the level for the Geographically Targeted Goal.

2. HUD's Geographically Targeted Goal

HUD's definition of the geographic areas targeted by this goal is basically the same as that used during 1996-99. It is divided into a metropolitan component and a nonmetropolitan component.

Metropolitan Areas. This rule provides that within metropolitan areas, mortgage purchases will count toward the goal when those mortgages finance properties that are located in census tracts where (1) median income of families in the tract does not exceed 90 percent of area (MSA) median income or (2) minorities comprise 30 percent or more of the residents and median income of families in the tract does not exceed 120 percent of area median income.

The definition includes 20,326 of the 43,232 census tracts (47 percent) in metropolitan areas, which include 44 percent of the metropolitan population.¹ The tracts included in this definition suffer from poor mortgage access and distressed socioeconomic conditions. The average mortgage denial rate in these tracts is 19.4 percent, almost twice the denial rate in

excluded tracts. The tracts include 73 percent of the number of poor persons in metropolitan areas.

This definition is based on studies of mortgage lending and mortgage credit flows conducted by academic researchers, community groups, the GSEs, HUD and other government agencies. While more research must be done before mortgage access for different types of people and neighborhoods is fully understood, one finding from the existing research literature stands out—high-minority and low-income neighborhoods continue to have higher mortgage denial rates and lower mortgage origination rates than other neighborhoods. A neighborhood's minority composition and its level of income are highly correlated with measuring access to mortgage credit.

Nonmetropolitan Areas. This rule provides that in nonmetropolitan areas mortgage purchases that finance properties that are located in counties will count toward the Geographically Targeted Goal where (1) median income of families in the county does not exceed 95 percent of the greater of (a) state nonmetropolitan median income or (b) nationwide nonmetropolitan median income, or (2) minorities comprise 30 percent or more of the residents and median income of families in the county does not exceed 120 percent of the greater of (a) state nonmetropolitan median income or (b) nationwide nonmetropolitan median income. The nonmetropolitan definition has been expanded slightly by adding criterion (b) under part (2) of this definition—as a result, 14 counties in Texas, Mississippi, Arizona, Arkansas, Georgia, and Louisiana that were previously classified as served areas have now been reclassified as underserved counties.

Two important factors influenced HUD's definition of nonmetropolitan underserved areas—lack of available data for measuring mortgage availability in rural areas and lenders' difficulty in operating mortgage programs at the census tract level in rural areas. Because of these factors, this rule uses a more inclusive, county-based definition of underservedness in rural areas. HUD's definition includes 1,511 of the 2,305 counties (66 percent) in nonmetropolitan areas and accounts for 54 percent of the nonmetropolitan population and 67 percent of the nonmetropolitan poverty population.

Goal Levels. The Geographically Targeted Goal is 31 percent of eligible units financed for calendar years 2001-03. HUD estimates that the mortgage market in areas included in the Geographically Targeted Goal accounts for 29-32 percent of the total number of newly-mortgaged dwelling units. HUD's analysis indicates that 27.0 percent of Fannie Mae's 1998 purchases and 26.8 percent of its 1999 purchases financed dwelling units located in these areas. The corresponding performance for Freddie Mac was 26.1 percent in 1998 and 27.5 percent in 1999.

3. Response to Comments

This section briefly reviews the main comments on the analyses reported in this appendix. First, both GSEs, but particularly Freddie Mac, were concerned that the Underserved Areas Goal was set too high.

Second, HUD received varying responses on changing the underserved areas definition to adopt an "enhanced" definition that would lower the income threshold for the census tract definition to 80 percent and raise the minority threshold to 50 percent. Finally, HUD received a range of comments on switching the non-metropolitan underserved areas definition from a county-based to a tract-based approach. With respect to the latter two issues, HUD has decided to wait until year 2000 Census data are available, which will allow for an up-to-date comprehensive analysis of these issues.

a. The Level of the Underserved Areas Goal

Fannie Mae supported the increase in affordable housing goals, which includes raising the underserved areas goal from its current level of 24 percent to 31 percent. Freddie Mac stated that "the Underserved Areas Goal proposed by the Department is unreasonably high" and recommended that the goal level be reduced from 31 percent to 30 percent. Freddie Mac stated further that "setting the Underserved Areas Goal at 31 percent for those three years [2001–03] amounts to a significantly larger stretch than for the other two goals and makes it significantly less feasible under a variety of economic conditions". Freddie Mac based its conclusion on a number of factors, such as the fact that this goal is set closer to the upper end of HUD's market range (29–32 percent), as compared with the Low-Mod and Special Affordable Goals; Freddie Mac concluded that consistency with the other two goals would call for a 30 percent Underserved Areas Goal. In addition, Freddie Mac stated that HUD's market range is overestimated and does not fully account for adverse economic changes. According to Freddie Mac, HUD's overestimation of the underserved areas market is due to HUD's overestimation of the rental property share of the mortgage market; to a bias in HMDA data that leads to the underserved areas portion of the owner market being overstated; and to HUD's underestimation of the subprime portion of the single-family market.

HUD's Response. HUD does not agree with Freddie Mac's recommendation that the Underserved Areas Goal should be lowered below the proposed level. Several factors must be considered when evaluating Freddie Mac's analysis and recommendations. First, HUD disagrees with Freddie Mac's conclusion that the Department's methodology overstates the rental portion of the market. HUD's analysis of this issue is discussed in Sections B and C of Appendix D. By relying on HMDA data, Freddie Mac (as well as the Freddie Mac-funded study by PriceWaterhouseCoopers) significantly underestimates the multifamily share of the mortgage market, which leads to its erroneous conclusions about the size of the underserved areas market.

Second, HUD has set its range of market estimates for this goal at a rather conservative level. As discussed in Section G of Appendix D, the underserved areas portion of the market (without B&C loans) averaged 33 percent between 1995 and 1998—somewhat higher than the top end of HUD's 29–32 percent market range. As shown in Table D.19 of Appendix D, the underserved areas

share of the owner market could fall from its 1995–98 average of 33 percent to 24 percent before the overall market estimate would fall to 30 percent, and to below 22 percent before the overall market estimate would fall below 29 percent. As mentioned in HUD's response to the "volatility" issue (see Section B of Appendix D), the Secretary can re-examine the feasibility of the housing goals if a recession or other economic conditions cause a substantial decline in the mortgage market in underserved areas.

Third, HUD excluded the B&C portion of the subprime market when determining its market range (29–32 percent) for underserved areas. As explained in Section G of Appendix D, the estimated increase in the market share due to the county-based definition in non-metropolitan areas more than offsets the estimated reduction in market share due to the exclusion of B&C loans. (This offsetting pattern can be seen in Table D.15 of Appendix D for the years 1995–98.) But due to inadequate mortgage market data for non-metropolitan areas, HUD was unable to fully include the effects of underserved counties in its market range for the Underserved Areas Goal. Thus, the 29–32 percent range is a conservative market estimate. HUD continues to explore other data bases to improve its estimates of the mortgage market in rural underserved counties.

Finally, it should be noted that the rental sectors that the GSEs have traditionally experienced the most difficulty penetrating are less important for the Underserved Areas Goal than for the Low-Mod and Special Affordable Goals. The latter two goals rely more heavily on the GSEs' single-family rental and multifamily purchases than the Underserved Areas Goal. For example, special affordable loans amounted to one half of the rental units financed by the GSEs during 1998, versus only 10.6 percent of the owner units, yielding a rental-to-owner ratio of 4.7. On the other hand, units in underserved areas amounted to 43.1 percent of the rental units financed, versus 23.4 percent of the owner units, yielding a much lower rental-to-owner ratio of 1.8.

b. Changes in the Underserved Areas Definition for Metropolitan Areas

Neither Fannie Mae nor Freddie Mac supported changing the underserved areas definition in metropolitan areas. With regard to the enhanced option, the GSEs advocated against reducing the number of census tracts that qualified for goal based on 1990 Census data, since these tracts might qualify under the updated 2000 Census data. Both GSEs believe that HUD should not change the current definition until the updated information for demographics and housing stock composition of census tracts is available from the 2000 census data.

In addition to the GSEs' views, a number of comments both supporting and opposing the enhanced definition were received. Advocates for the enhanced definition supported changing the tract income ratio from 90 percent to 80 percent to coincide with the definition under the Community Reinvestment Act (CRA). This change would make the GSEs' housing goals and CRA mutually supportive and would use a standard already employed by banks.

Comments against the enhanced definition fell into two categories: some commenters did not support decreasing the number of census tracts that qualify as underserved areas, while others did not support using the greater of local or national median income in computing the tract income ratio.

No general support from the GSEs or other commenters was found for increasing the minimum minority composition of underserved census tracts from 30 percent to 50 percent. One commenter indicated that this change would disproportionately impact the Hispanic population, though no data was presented to support this claim.

HUD's Response. HUD is not changing the definition of underserved metropolitan areas in this final rule, but the Department reserves the right to reexamine this definition following the release of the 2000 Census data. The Department acknowledges that the 2000 Census will impact the designation of census tracts that are currently targeted as underserved areas. Many changes have occurred in the last decade that impact the various factors which make up the underserved areas definition. Any changes in the underserved area definition based on the 1990 Census data would not provide a complete assessment of outcomes.

c. Changes to the Underserved Areas Definition for Non-metropolitan Areas

Fannie Mae and Freddie Mac agreed that the current county-based definition for non-metropolitan areas should be retained. Both GSEs believe, as also indicated in their comments on the 1995 rule, that rural lenders' business is centered around counties, rather than census tracts. They cite the lack of data for rural areas as sufficient cause to maintain the status quo, since the information void makes it difficult to judge the impact of any change in the definition.

Some commenters agreed with the GSEs, while others did not. One set of commenters including America's Community Bankers and the Independent Community Bankers of America agreed with the GSEs regarding retention of the county-based definition. The Housing Assistance Council supported changing the underserved areas definition to a more targeted, census tract-based definition.

Other recommendations for defining rural underserved areas were received. The Wisconsin Rural Development Center and the Fair Lending Coalition of Milwaukee proposed looking at the minimum income ratio based on county, tract, or block group. A few commenters proposed using poverty levels as a criteria for targeting underserved counties.

HUD's Response. HUD recognizes the broad nature of the current definition of rural underserved areas. As explained in the proposed rule, one shortcoming of this goal in non metropolitan counties is that it does not target the GSEs' purchases very well—for example, the GSEs' mortgage purchases in rural underserved areas have a higher share of borrowers with income above county median income than their purchases in urban underserved areas. However, due to the lack of data on mortgage originations in non-metropolitan areas, it is difficult to precisely identify rural underserved areas. The

Department acknowledges that the 2000 Census will impact the designation of counties that are currently targeted as underserved. Before changing the definition for underserved non-metropolitan areas, it would be prudent to wait for new data on area demographics. HUD will re-examine this issue when data from the 2000 Census are available.

B. Consideration of Factors 1 and 2 in Metropolitan Areas: The Housing Needs of Underserved Urban Areas and Housing, Economic, and Demographic Conditions in Underserved Urban Areas

This section discusses differential access to mortgage funding in urban areas and summarizes available evidence on identifying those neighborhoods that have historically experienced problems gaining access to mortgage funding. Section B.1 provides an overview of the problem of unequal access to mortgage funding in the nation's housing finance system, focusing on discrimination and other housing problems faced by minority families and the communities where they live. Section B.2 examines mortgage access at the neighborhood level and discusses in some detail the rationale for the Geographically Targeted Goal in metropolitan areas. The most thorough studies available provide strong evidence that in metropolitan areas low income and high minority census tracts are underserved by the mortgage market.

Three main points are made in this section:

- There is evidence of racial disparities in both the housing and mortgage markets. Partly as a result of this, the homeownership rate for minorities is substantially below that for whites.
- The existence of substantial neighborhood disparities in mortgage credit is well documented for metropolitan areas. Research has demonstrated that census tracts with lower incomes and higher shares of minority population consistently have poorer access to mortgage credit, with higher mortgage denial rates and lower origination rates for mortgages. Thus, the income and minority composition of an area is a good measure of whether that area is being underserved by the mortgage market.
- Research supports a targeted definition. Studies conclude that characteristics of the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates. Once these characteristics are accounted for, other influences, such as location in an OMB-designated central city, play only a minor role in explaining disparities in mortgage lending.²

1. Discrimination in the Mortgage and Housing Markets—An Overview

The nation's housing and mortgage markets are highly efficient systems, where most homebuyers can put down relatively small amounts of cash and obtain long-term funding at relatively small spreads above the lender's borrowing costs. Unfortunately, this highly efficient financing system does not work everywhere or for everyone. Studies have shown that access to credit often depends on improper evaluation of

characteristics of the mortgage applicant and the neighborhood in which the applicant wishes to buy. In addition, though racial discrimination has become less blatant in the home purchase market, studies have shown that it is still widespread in more subtle forms. Partly as a result of these factors, the homeownership rate for minorities is substantially below that of whites.

Appendix A provided an overview of the homeownership gaps and lending disparities faced by minorities. A quick look at mortgage denial rates reported by the 1998 HMDA data reveals that minority denial rates were higher than those for white loan applicants. For lower-income borrowers, the conventional denial rate for African Americans was 1.9 times the denial rate for white borrowers, while for higher-income borrowers, the denial rate for African Americans was 2.5 times the rate for white borrowers. Similarly, the FHA denial rate for lower-income African Americans was 1.7 times the denial rates for lower-income white borrowers and twice as high for higher-income African Americans as for whites with similar incomes.

Several analytical studies, some of which are reviewed later in this section, show that these differentials in denial rates are not fully accounted for by differences in credit risk. Perhaps the most publicized example is a study by the Federal Reserve Bank of Boston, described in more detail below, which found that differential denial rates were most prevalent among marginal applicants.³ Highly qualified borrowers of all races seemed to be treated equally, but in cases where there was some flaw in the application, white applicants seemed to be given the benefit of the doubt more frequently than minority applicants.

The Urban Institute conducted a case study of lenders' origination processes.⁴ The research team and lenders believed origination processes to be race-blind. A review of the HMDA data revealed that origination outcomes were different for whites, black, and Hispanics—where lenders denied a small proportion of minority applicants, they denied an even smaller proportion of white applications. This may result from the lender's staff making greater efforts to qualify marginal white applicants compared with marginal black and Hispanic applicants.

In addition to discrimination in the lending market, substantial evidence exists of discrimination in the housing market. The 1991 Housing Discrimination Study sponsored by HUD found that minority home buyers encounter some form of discrimination about half the time when they visit a rental or sales agent to ask about advertised housing.⁵ The incidence of discrimination was higher for African Americans than for Hispanics and for homebuyers than for renters. For renters, the incidence of discrimination was 46 percent for Hispanics and 53 percent for African Americans. The incidence among buyers was 56 percent for Hispanics and 59 percent for African Americans.

While discrimination is rarely overt, minorities are more often told the unit of interest is unavailable, shown fewer properties, offered less attractive terms,

offered less financing assistance, or provided less information than similarly situated non-minority homeseekers. Some evidence indicates that properties in minority and racially-diverse neighborhoods are marketed differently from those in White neighborhoods. Houses for sale in non-White neighborhoods are rarely advertised in metropolitan newspapers, open houses are rarely held, and listing real estate agents are less often associated with a multiple listing service.⁶

Discrimination, while not the only cause, contributes to the pervasive level of segregation that persists between African Americans and Whites in our urban areas. Because minorities tend to live in segregated neighborhoods, their difficulty in obtaining mortgage credit has a concentrated effect on the viability of their neighborhoods. In addition, there is evidence that denial rates are higher in minority neighborhoods regardless of the race of the applicant. The next section explores the issue of credit availability in neighborhoods in more detail.

2. Evidence About Access to Credit in Urban Neighborhoods

The viability of neighborhoods—whether urban, rural, or suburban—depends on the access of their residents to mortgage capital to purchase and improve their homes. While neighborhood problems are caused by a wide range of factors, including substantial inequalities in the distribution of the nation's income and wealth, there is increasing agreement that imperfections in the nation's housing and mortgage markets are hastening the decline of distressed neighborhoods. Disparate denial of credit based on geographic criteria can lead to disinvestment and neighborhood decline. Discrimination and other factors, such as inflexible and restrictive underwriting guidelines, limit access to mortgage credit and leave potential borrowers in certain areas underserved.

Data on mortgage credit flows are far from perfect, and issues regarding the identification of areas with inadequate access to credit are both complex and controversial. For this reason, it is essential to define "underserved areas" as accurately as possible from existing data. To provide the reasoning behind the Department's definition of underserved areas, this section first uses 1998 HMDA data to examine geographic variation in mortgage denial rates, and then it reviews three sets of studies that support HUD's definition. These include (1) studies examining racial discrimination against individual mortgage applicants, (2) studies that test whether mortgage redlining exists at the neighborhood level, and (3) studies that support HUD's targeted approach to measuring areas that are underserved by the mortgage market. In combination, these studies provide strong support for the definition of underserved areas chosen by HUD. The review of the economics literature draws from Appendix B of the 1995 GSE Rule; readers are referred there for a more detailed treatment of earlier studies of the issues discussed below.

a. HMDA Data on Mortgage Originations and Denial Rates

Home Mortgage Disclosure Act (HMDA) data provide information on the disposition of mortgage loan applications (originated, approved but not accepted by the borrower, denied, withdrawn, or not completed) in metropolitan areas. HMDA data include the census tract location of the property being financed and the race and income of the loan applicant(s). Therefore, it is a rich data base for analyzing mortgage activity in urban neighborhoods. HUD's analysis using HMDA data for 1998 shows that high-minority and

low-income census tracts have both relatively high loan application denial rates and relatively low loan origination rates.

Table B.1 presents mortgage denial and origination rates by the minority composition and median income of census tracts in metropolitan areas. Two patterns are clear:

- Census tracts with higher percentages of minority residents have higher mortgage denial rates and lower mortgage origination rates than all-white or substantially-white tracts. For example, in 1998 the denial rate for census tracts that are over 90 percent minority (26.6 percent) was 2.5 times that for

census tracts with less than 10 percent minority (10.4 percent).

- Census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. For example, in 1998 mortgage denial rates declined from 26.8 percent to 7.4 percent as tract income increased from less than 20 percent of area median income to more than 150 percent of area median income.⁷ Similar patterns arose in HUD's analysis of 1993 and 1994 HMDA data (see Appendix B of the 1995 rule).

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Table B.1

Origination and Denial Rates for Conventional Mortgages

Minority Percentage	Originations Per 100 Owner-Occupied Units (Purchases and Refinances)			Denial Rates (Home Purchases)		
	1996	1997	1998	1996	1997	1998
	Less than 10%	8.8	8.8	16.8	10.3 %	10.6 %
10-20	8.1	8.5	16.3	12.4	12.5	12.3
20-30	7.3	7.8	14.7	14.9	14.9	14.6
30-40	6.5	7.0	12.9	17.3	16.5	16.6
40-50	6.1	6.6	11.9	18.9	18.6	18.2
50-60	6.0	6.4	11.2	20.1	19.1	18.8
60-70	5.9	6.3	10.8	21.3	20.0	20.6
70-80	5.8	6.4	10.4	22.4	20.6	20.6
80-90	5.4	5.8	9.1	23.2	22.4	22.7
90-100	4.3	5.0	7.3	27.4	25.8	26.6
All Tracts	7.9	8.2	15.2	12.7	12.8	12.7

Tract Income Relative to MSA Median	Originations Per 100 Owner-Occupied Units (Purchases and Refinances)			Denial Rates (Home Purchases)		
	1996	1997	1998	1996	1997	1998
	Less than 20%	7.0	8.4	11.6	30.1 %	23.9 %
20-30	5.0	6.0	8.5	31.5	24.2	25.2
30-40	4.4	5.2	7.6	27.4	25.3	26.0
40-50	5.0	5.8	8.4	24.8	23.6	24.8
50-60	4.9	5.6	8.4	25.1	22.7	23.0
60-70	5.3	6.0	9.4	22.4	21.9	21.5
70-80	5.9	6.5	10.7	20.4	19.9	19.9
80-90	6.7	7.1	12.1	17.4	17.9	17.7
90-100	7.3	7.6	13.7	15.0	15.0	15.2
100-110	8.1	8.3	15.5	12.5	13.0	12.8
110-120	9.0	9.0	17.6	10.6	11.0	11.0
120-150	9.7	9.8	19.6	8.9	9.0	8.8
150+	9.1	9.1	18.5	7.7	7.9	7.4
All Tracts	7.9	8.2	15.2	12.7	12.8	12.7

Source: HUD analysis of 1996, 1997 and 1998 HMDA Data. Denial rate data exclude loans of lenders, respectively, that primarily originate manufactured housing loans.

Table B.2
Mortgage Denial and Origination Rates
By Minority and Income Characteristics
of the Census Tract

Denial Rates (Purchase Mortgages Only)				
Minority Composition				
Tract Income	< 30%	30-50%	50-100%	Total
Less Than 90%	17.8%	20.4%	24.0%	19.8%
90-120%	12.4%	16.6%	19.2%	13.0%
120+	7.9%	12.5%	14.8%	8.3%
Total	11.4%	17.2%	21.9%	12.7%
Origination Rates per 100 Owner Occupants (Purchase and Refinance Mortgages)				
Minority Composition				
Tract Income	< 30%	30-50%	50-100%	Total
Less Than 90%	11.8	10.9	8.5	10.7
90-120%	16.1	12.5	10.8	15.5
120+	19.6	16.1	13.6	19.2
Total	16.4	12.5	9.4	15.2

Source: HUD analysis of 1998 HMDA Data. Data on denial rates exclude loans of lenders that primarily originate manufactured housing loans.

Table B.2 illustrates the interaction between tract minority composition and tract income by aggregating the data in Table B.1 into nine minority and income combinations. The low-minority (less than 30 percent minority), high-income (over 120 percent of area median) group had a denial rate of 7.9 percent and an origination rate of 19.6 loans per 100 owner occupants in 1998. The high-minority (over 50 percent), low-income (under 90 percent of area median) group had a denial rate of 24.0 percent and an origination rate of only 8.5 loans per 100 owner occupants. The other groupings fall between these two extremes.

The advantages of HUD's underserved area definition can be seen by examining the minority-income combinations highlighted in Table B.2. The sharp differences in denial rates and origination rates between the underserved and remaining served categories illustrate that HUD's definition delineates areas that have significantly less success in receiving mortgage credit. In 1998 underserved areas had almost twice the average denial rate of served areas (19.4 percent versus 10.3 percent) and less than two-thirds the average origination rate per 100 owner occupants (10.8 versus 17.5). HUD's definition does not include high-income (over 120 percent of area median) census tracts even if they meet the minority threshold. The mortgage denial rate (13.3 percent) for high-income tracts with a minority share of population over 30 percent is much less than the denial rate (19.4 percent) in underserved areas as defined by HUD, and only slightly above the average (10.3 percent) for all served areas.

b. Federal Reserve Bank Studies

The analysis of denial rates in the above section suggests that HUD's definition is a good proxy for identifying areas experiencing credit problems. However, an important question is the degree to which variations in denial rates reflect lender bias against certain kinds of neighborhoods and borrowers versus the degree to which they reflect the credit quality of potential borrowers (as indicated by applicants' available assets, credit rating, employment history, etc.). Some studies of credit disparities have attempted to control for credit risk factors that might influence a lender's decision to approve a loan. Without fully accounting for the creditworthiness of the borrower, racial differences in denial rates cannot be attributed to lender bias.

The best example of accounting for credit risk is the study by researchers at the Federal Reserve Bank of Boston, which analyzed mortgage denial rates.⁸ To control for credit risk, the Boston Fed researchers included 38 borrower and loan variables indicated by lenders to be critical to loan decisions. For example, the Boston Fed study included a measure of the borrower's credit history, which is a variable not included in other studies. The Boston Fed study found that minorities' higher denial rates could not be explained fully by income and credit risk factors. African Americans and Hispanics were about 60 percent more likely to be denied credit than Whites, even after controlling for credit risk characteristics such as credit history, employment stability, liquid assets, self-employment, age, and

family status and composition. Although almost all highly-qualified applicants of all races were approved, differential treatment was observed among borrowers with more marginal qualifications.⁹

A subsequent reassessment and refinement of the data used by the Federal Reserve Bank of Boston confirmed the findings of that study.¹⁰ William C. Hunter of the Federal Reserve Bank of Chicago confirmed that race was a factor in denial rates of marginal applicants. While denial rates were comparable for borrowers of all races with "good" credit ratings, among those with "bad" credit ratings or high debt ratios, minorities were significantly more likely to be denied than similarly-situated whites. The study concluded that the racial differences in denial rates were consistent with a cultural gap between white loan officers and minority applicants, and conversely, a cultural affinity with white applicants.

The two Fed studies concluded that the effect of borrower race on mortgage rejections persists even after controlling for legitimate determinants of lenders' credit decisions. Thus, they imply that variations in mortgage denial rates, such as those given in Table B.2, are not determined entirely by borrower risk, but reflect discrimination in the housing finance system. However, the independent race effect identified in these studies is still difficult to interpret. In addition to lender bias, access to credit can be limited by loan characteristics that reduce profitability¹¹ and by underwriting standards that have disparate effects on minority and lower-income borrowers and their neighborhoods.¹²

c. Controlling for Neighborhood Risk and Tests of the Redlining Hypothesis

In its deliberations leading up to FHEFSSA, Congress was concerned about geographic redlining—the refusal of lenders to make loans in certain neighborhoods regardless of the creditworthiness of individual applicants. During the 1980's and early 1990's, a number of studies using HMDA data (such as that reported in Tables B.1 and B.2) attempted to test for the existence of mortgage redlining. Consistent with the redlining hypothesis, these studies found lower volumes of loans going to low-income and high-minority neighborhoods.¹³ However, such analyses were criticized because they did not distinguish between demand, risk, and supply effects¹⁴—that is, they did not determine whether loan volume was low because families in high-minority and low-income areas were unable to afford home ownership and therefore were not applying for mortgage loans, or because borrowers in these areas were more likely to default on their mortgage obligations, or because lenders refused to make loans to creditworthy borrowers in these areas.^{15 16}

Recent statistical studies have sought to test the redlining hypothesis by more completely controlling for differences in neighborhood risk and demand. The first two studies reviewed below are good examples of the more recent literature. In these studies, the explanatory power of neighborhood race is reduced to the extent that the effects of neighborhood risk and demand are accounted for; thus, they do not support claims of racially induced mortgage

redlining. However, as explained below, these studies cannot reach definitive conclusions about redlining because segregation in our inner cities makes it difficult to distinguish the impacts of geographic redlining from the effects of individual discrimination.

Additional studies related to redlining and the credit problems facing low-income and minority neighborhoods are also summarized. Particularly important are studies that focus on the "thin" mortgage markets in these neighborhoods and the implications of lenders not having enough information about the collateral and other characteristics of these neighborhoods. The low numbers of house sales and mortgages originated in low-income and high-minority neighborhoods result in individual lenders perceiving these neighborhoods to be more risky. It is argued that lenders do not have enough historical information to project the expected default performance of loans in low-income and high-minority neighborhoods, which increases their uncertainty about investing in these areas.

Holmes and Horvitz Study. Andrew Holmes and Paul Horvitz used 1988–1991 HMDA data to examine variations in conventional mortgage originations across census tracts in Houston. Their single-equation regression model included as explanatory variables the economic viability of the loan, characteristics of properties in and residents of the tract (e.g., house value, income, age distribution and education level), measures of demand (e.g., recent movers into the tract and change in owner-occupied units between 1980 and 1990), and measures of credit risk (defaults on government-insured loans and change in tract house values between 1980 and 1990). To test the existence of racial redlining, the model also included as explanatory variables the percentages of African American and Hispanic residents in the tract and the increase in the tract's minority percentage between 1980 and 1990. Most of the neighborhood risk and demand variables were significant determinants of the flow of conventional loans in Houston. The coefficients of the racial composition variables were insignificant, which led Holmes and Horvitz to conclude that allegations of redlining in the Houston market could not be supported.

Schill and Wachter Study. Michael Schill and Susan Wachter posited that the probability that a lender will accept a specific mortgage application depends on characteristics of the individual loan application¹⁷ and characteristics of the neighborhood where the property collateralizing the loan is located. Schill and Wachter included neighborhood risk proxies that are likely to affect the future value of the properties,¹⁸ and they included the percentage of the tract population comprised of African Americans and Hispanics in order to test for the existence of racial discrepancies in lending patterns across census tracts.

Testing their model for conventional mortgages in Philadelphia and Boston, Schill and Wachter found that the applicant race variables—whether the applicant was African

American or Hispanic—showed significant negative effects on the probability that a loan would be accepted. Schill and Wachter stated that this finding does not provide evidence of individual race discrimination because applicant race is most likely serving as a proxy for credit risk variables omitted from their model (e.g., credit history, wealth and liquid assets). In an initial analysis that excluded the neighborhood risk variables from the model, the percentage of the census tract that was African American also showed a significant and negative coefficient, a result that is consistent with redlining. However, when the neighborhood risk proxies were included in the model along with the individual loan variables, the percentage of the census tract that was African American became insignificant. Thus, similar to Holmes and Horvitz, Schill and Wachter stated that “once the set of independent variables is expanded to include measures that act as proxies for neighborhood risk, the results do not reveal a pattern of redlining.”¹⁹

Other Redlining Studies. To highlight the methodological problems of single-equation studies of mortgage redlining, Fred Phillips-Patrick and Clifford Rossi developed a simultaneous equation model of the demand and supply of mortgages, which they estimated for the Washington, DC metropolitan area.²⁰ Phillips-Patrick and Rossi found that the supply of mortgages is negatively associated with the racial composition of the neighborhood, which led them to conclude that the results of single-equation models (such as the one estimated by Holmes and Horvitz) are not reliable indicators of redlining or its absence. However, Phillips-Patrick and Rossi noted that even their simultaneous equations model does not provide definitive evidence of redlining because important underwriting variables (such as credit history), which are omitted from their model, may be correlated with neighborhood race.

A few studies of neighborhood redlining have attempted to control for the credit history of the borrower, which is the main omitted variable in the redlining studies reviewed so far. Samuel Myers, Jr. and Tsze Chan, who studied mortgage rejections in the state of New Jersey in 1990, developed a proxy for bad credit based on the reasons that lenders give in their HMDA reports for denying a loan.²¹ They found that 70 percent of the gap in rejection rates could not be explained by differences in Black and white borrower characteristics, loan characteristics, neighborhoods or bad credit. Myers and Chan concluded that the unexplained Black-white gap in rejection rates is a result of discrimination. With respect to the racial composition of the census tract, they found that Blacks are more likely to be denied loans in racially integrated or predominantly-white neighborhoods than in predominantly-Black neighborhoods. They concluded that middle-class Blacks seeking to move out of the inner city would face problems of discrimination in the suburbs.²²

Geoffrey Tootell has authored two papers on neighborhood redlining based on the mortgage rejection data from the Boston Fed study.²³ Tootell's studies are important

because they include a direct measure of borrower credit history, as well as the other underwriting, borrower, and neighborhood characteristics that are included in the Boston Fed data base; thus, his work does not have the problem of omitted variables to the same extent as previous redlining studies.²⁴ Tootell found that lenders in the Boston area did not appear to be redlining neighborhoods based on the racial composition of the census tract or the average income in the tract. Consistent with the Boston Fed and Schill and Wachter studies, Tootell found that it is the race of the applicant that mostly affects the mortgage lending decision; the location of the applicant's property appears to be far less relevant. However, he did find that the decision to require private mortgage insurance (PMI) depends on the racial composition of the neighborhood. Tootell suggested that, rather than redline themselves, mortgage lenders may rely on private mortgage insurers to screen applications from minority neighborhoods. Tootell also noted that this indirect form of redlining would increase the price paid by applicants from minority areas that are approved by private mortgage insurers.

In a 1999 paper, Stephen Ross and Geoffrey Tootell used the Boston Fed data base to take a closer at both lender redlining and the role of private mortgage insurance (PMI) in neighborhood lending.²⁵ They had two main findings. First, mortgage applications for properties in low-income neighborhoods were more likely to be denied if the applicant did not apply for PMI. Ross and Tootell concluded that their study provides the first direct evidence based on complete underwriting data that some mortgage applications may have been denied based on neighborhood characteristics that legally should not be considered in the underwriting process. Second, mortgage applicants were often forced to apply for PMI when the housing units were in low-income neighborhoods. Ross and Tootell concluded that lenders appeared to be responding to CRA by favoring low-income tracts once PMI has been received, and this effect counteracts the high denial rates for applications without PMI in low-income tracts.

Studies of Information Externalities. A recent group of studies that focus on economies of scale in the collection of information about neighborhood characteristics has implications for the identification of underserved areas and understanding the problems of mortgage access in low-income and minority neighborhoods. William Lang and Leonard Nakamura argue that individual home sale transactions generate information which reduce lenders' uncertainty about property values, resulting in greater availability of mortgage financing.²⁶ Conversely, appraisals in neighborhoods where transactions occur infrequently will tend to be more imprecise, resulting in greater uncertainty to lenders regarding collateral quality, and more reluctance by them in approving mortgage loans in neighborhoods with thin markets. As a consequence, “prejudicial practices of the past may lead to continued differentials in lending behavior.”

If low-income or minority tracts have experienced relatively few recent

transactions, the resulting lack of information available to lenders will result in higher denial rates and more difficulty in obtaining mortgage financing, independently of the level of credit risk in these neighborhoods.

A number of empirical studies have found evidence consistent with the notion that mortgage credit is more difficult to obtain in areas with relatively few recent sales transactions. Some of these studies have also found that low transactions volume may contribute to disparities in the availability of mortgage credit by neighborhood income and minority composition.

Paul Calem found that, in low-minority tracts, higher mortgage loan approval rates were associated with recent sales transactions volume, consistent with the Lang and Nakamura hypothesis.²⁷ While this effect was not found in high-minority tracts, he concludes that “informational returns to scale” contribute to disparities in the availability of mortgage credit between low-minority and high-minority areas. Empirical research by David Ling and Susan Wachter found that recent tract-level sales transaction volume does significantly contribute to mortgage loan acceptance rates in Dade County, Florida, also consistent with the Lang and Nakamura hypothesis.²⁸

Robert Avery, Patricia Beeson, and Mark Sniderman found significant evidence of economies associated with the scale of operation of individual lenders in a neighborhood.²⁹ They concluded that “The inability to exploit these economies of scale is found to explain a substantial portion of the higher denial rates observed in low-income and minority neighborhoods, where the markets are generally thin.” Low-income and minority neighborhoods often suffer from low transactions volume, and low transactions volume represents a barrier to the availability of mortgage credit by making mortgage lenders more reluctant to approve and originate mortgage loans in these areas.

d. Geographic Dimensions of Underserved Areas—Targeted versus Broad Approaches

HUD's definition of metropolitan underserved areas is a targeted neighborhood definition, rather than a broad definition that would encompass entire cities. It also focuses on those neighborhoods experiencing the most severe credit problems, rather than neighborhoods experiencing only moderate difficulty obtaining credit. During the regulatory process leading to the 1995 rule, some argued that underserved areas under this goal should be defined to include all parts of all central cities, as defined by OMB. HUD concluded that such broad definitions were not a good proxy for mortgage credit problems—to use them would allow the GSEs to focus on wealthier parts of cities, rather than on neighborhoods experiencing credit problems. This section reports findings from several analyses by HUD and academic researchers that support defining underserved areas in terms of the minority and/or income characteristics of census tracts, rather than in terms of a broad definition such as all parts of all central cities.

Socioeconomic Characteristics. The targeted nature of HUD's definition can be seen from the data presented in Table B.3,

which show that families living in underserved areas experience much more economic and social distress than families living in served areas. For example, the poverty rate in underserved census tracts is 20.1 percent, or almost four times the poverty

rate (5.8 percent) in served census tracts. The unemployment rate and the high-school dropout rate are also higher in underserved areas. In addition, there are nearly three times more female-headed households in

underserved areas (11.5 percent) than in served areas (4.3 percent).

The majority of units in served areas are owner-occupied, while the majority of units in underserved areas are renter-occupied.

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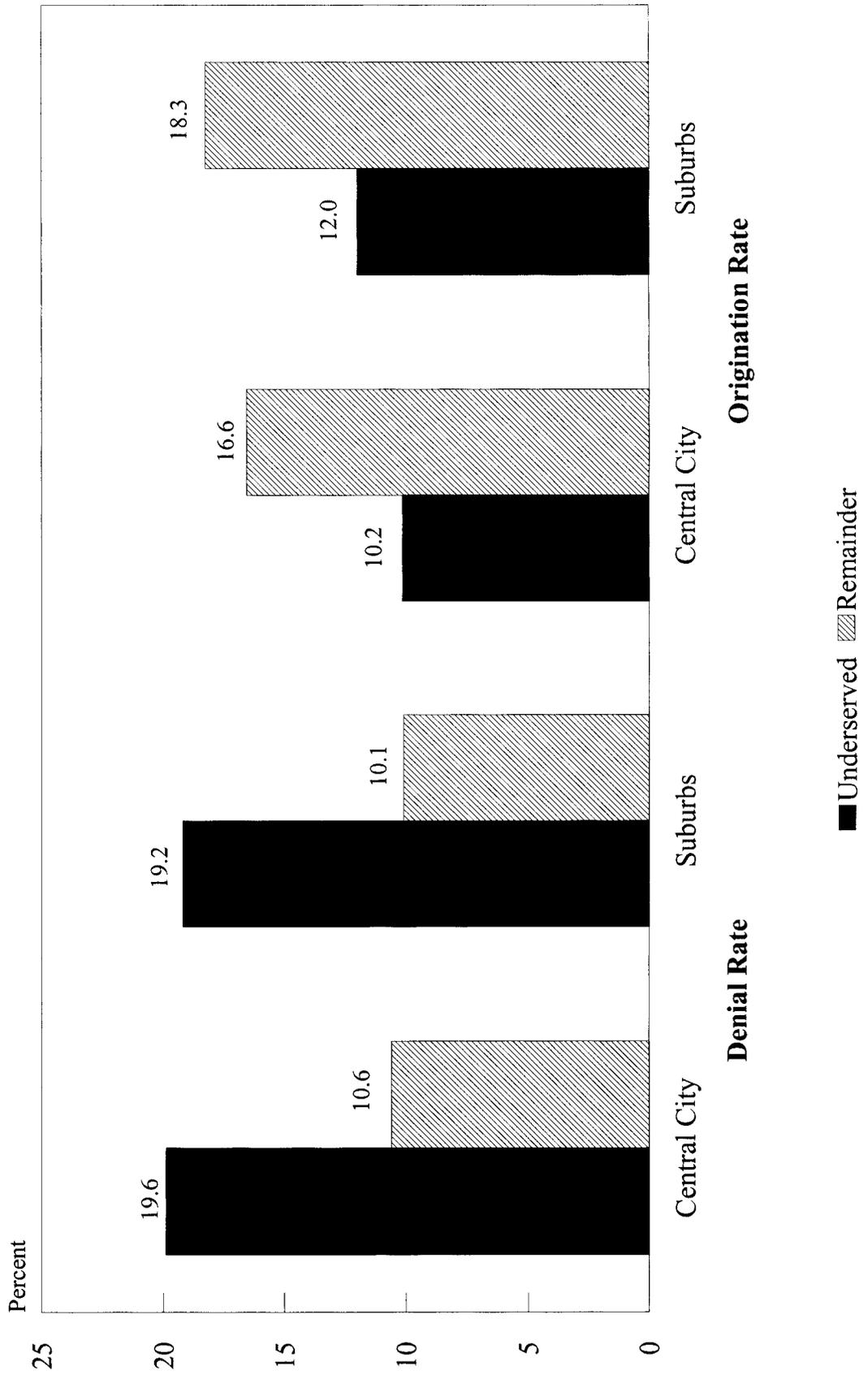
Table B.3

**Socioeconomic Characteristics of Underserved Areas
in Metropolitan Areas**

	Served Tracts	Underserved Tracts	Total
Census Tracts	23,819	21,587	45,406
Households	41,379,104	31,839,636	73,218,740
Population	110,037,735	87,578,825	197,616,560
Unemployment Rate	4.2%	9.0%	6.2%
Poverty Rate	5.8%	20.1%	12.1%
Dropout Rate	10.3%	20.4%	14.8%
Percent Female Household With Children	12.1%	28.3%	19.7%
Percent African-American	3.8%	23.6%	12.6%
Percent Minority	11.1%	46.6%	26.8%
Percent Owner-Occupied	71.3%	47.6%	61.0%
Percent Renter	28.6%	52.4%	38.9%

Source: 1990 Census.

Figure B.1
1998 Denial And Origination Rates
Underserved Areas And Remainder
By Central Cities And Suburbs



Credit Characteristics. Tables B.1 and B.2 documented the relatively high denial rates and low mortgage origination rates in underserved areas as defined by HUD. This section extends that analysis by comparing underserved and served areas within central cities and suburbs. Figure B.1 shows that HUD's definition targets central city neighborhoods that are experiencing problems obtaining mortgage credit. The 19.6 percent denial rate in these neighborhoods in 1998 was nearly twice the 10.6 percent denial rate in the remaining areas of central cities. A broad, inclusive definition of "central city" that includes all areas of all OMB-designated central cities would include these "remaining" portions of cities. Figure B.1 shows that these areas, which account for approximately 43 percent of the population in OMB-designated central cities, appear to be well served by the mortgage market. As a whole, they are not experiencing problems obtaining mortgage credit.³⁰

HUD's definition also targets underserved census tracts in the suburbs as well as in central cities—for example, the average denial rate in underserved suburban areas (19.2 percent) is more than twice that in the remaining served areas of the suburbs (10.1 percent). Low-income and high-minority suburban tracts appear to have credit problems similar to their central city counterparts. These suburban tracts, which account for 40 percent of the suburban population, are encompassed by the definition of other underserved areas.

As explained in the Preamble, HUD asked for public comment on two options that would tighten the targeting of the underserved areas definition and reduce the number of qualifying census tracts. After examining the comments the Department has decided to wait until the release of the 2000 Census Bureau data. In addition to providing updated information on neighborhoods, the 2000 Census Bureau will incorporate changes adopted by the Metropolitan Area Standards Review Committee that will impact the boundaries of current metropolitan areas.³¹

Shear, Berkovec, Dougherty, and Nothaft Study. William Shear, James Berkovec, Ann Dougherty, and Frank Nothaft conducted an analysis of mortgage flows and application acceptance rates in 32 metropolitan areas that supports a targeted definition of underserved areas.³² They found: (a) Low-income census tracts and tracts with high concentrations of African American and Hispanic families had lower rates of mortgage applications, originations, and acceptance rates;³³ and (b) once census tract influences were accounted for, central city location had only a minimal effect on credit flows. Shear, Berkovec, Dougherty, and Nothaft recognized that it is difficult to interpret their estimated minority effects—the effects may indicate lender discrimination, supply and demand effects not included in their model but correlated with minority status, or some combination of these factors. They explain the implications of their results for measuring underserved areas as follows:

While it is not at all clear how we might rigorously define, let alone measure, what it means to be underserved, it is clear that there are important housing-related problems

associated with certain location characteristics, and it is possible that, in the second or third best world in which we live, mortgage markets might be useful in helping to solve some of these problems. We then might use these data to help single out important areas or at least eliminate some bad choices. * * * The regression results indicate that income and minority status are better indicators of areas with special needs than central city location.³⁴

Avery, Beeson, and Sniderman Study. Robert Avery, Patricia Beeson, and Mark Sniderman of the Federal Reserve Bank of Cleveland presented a paper specifically addressing the issue of underserved areas in the context of the GSE legislation.³⁵ Their study examined variations in application rates and denial rates for all individuals and census tracts included in the 1990 and 1991 HMDA data base. They sought to isolate the differences that stem from the characteristics of the neighborhood itself rather than the characteristics of the individuals that apply for loans in the neighborhood or lenders that happen to serve them. Similar to the studies of redlining reviewed in the previous section, Avery, Beeson and Sniderman hypothesized that variations in mortgage application and denial rates would be a function of several risk variables such as the income of the applicant and changes in neighborhood house values; they tested for independent racial effects by adding to their model the applicant's race and the racial composition of the census tract. Econometric techniques were used to separate individual applicant effects from neighborhood effects.

Based on their empirical work, Avery, Beeson and Sniderman reached the following conclusions:

- The individual applicant's race exerts a strong influence on mortgage application and denial rates. African American applicants, in particular, had unexplainably high denial rates.
- Once individual applicant and other neighborhood characteristics were controlled for, overall denial rates for purchase and refinance loans were only slightly higher in minority census tracts than non-minority census tracts.³⁶ For white applicants, on the other hand, denial rates were significantly higher in minority tracts.³⁷ That is, minorities had higher denial rates wherever they attempted to borrow, but whites faced higher denials when they attempt to borrow in minority neighborhoods. In addition, Avery *et al.* found that home improvement loans had significantly higher denial rates in minority neighborhoods. Given the very strong effect of the individual applicant's race on denial rates, Avery *et al.* noted that since minorities tend to live in segregated communities, a policy of targeting minority neighborhoods may be warranted.

Other findings were:

- The median income of the census tract had strong effects on both application and denial rates for purchase and refinance loans, even after other variables were accounted for.
- There was little difference in overall denial rates between central cities and suburbs, once individual applicant and census tract characteristics were controlled for.

Avery, Beeson and Sniderman concluded that a tract-level definition is a more effective way to define underserved areas than using the list of OMB-designated central cities as a proxy.

e. Conclusions from HUD's Analysis and the Economics Literature About Urban Underserved Areas

The implications of studies by HUD and others for defining underserved areas can be summarized briefly. First, the existence of large geographic disparities in mortgage credit is well documented. HUD's analysis of HMDA data shows that low-income and high-minority neighborhoods receive substantially less credit than other neighborhoods and fit the definition of being underserved by the nation's credit markets.

Second, researchers are testing models that more fully account for the various risk, demand, and supply factors that determine the flow of credit to urban neighborhoods. The studies by Holmes and Horvitz, Schill and Wachter, and Tootell are examples of this research. Their attempts to test the redlining hypothesis show the analytical insights that can be gained by more rigorous modeling of this issue. However, the fact that our urban areas are highly segregated means that the various loan, applicant, and neighborhood characteristics currently being used to explain credit flows are often highly correlated with each other, which makes it difficult to reach definitive conclusions about the relative importance of any single variable such as neighborhood racial composition. Thus, their results are inconclusive and, thus, the need continues for further research on the underlying determinants of geographic disparities in mortgage lending.³⁸

Finally, much research strongly supports a targeted definition of underserved areas. Studies by Shear, *et al.* and Avery, Beeson, and Sniderman conclude that characteristics of both the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates—once these characteristics are controlled for, other influences such as central city location play only a minor role in explaining disparities in mortgage lending. HUD's analysis shows that both credit and socioeconomic problems are highly concentrated in underserved areas within central cities and suburbs. The remaining, high-income portions of central cities and suburbs appear to be well served by the mortgage market.

HUD recognizes that the mortgage origination and denial rates forming the basis for the research mentioned in the preceding paragraph, as well as for HUD's definition of underserved areas, are the result of the interaction of individual risk, demand and supply factors that analysts have yet to fully disentangle and interpret. The need continues for further research addressing this problem. HUD believes, however, that the economics literature is consistent with a targeted rather than a broad approach for defining underserved areas.

C. Consideration of Factors 1 and 2 in Nonmetropolitan Areas: The Housing Needs of Underserved Rural Areas and the Housing, Economic, and Demographic Conditions in Underserved Rural Areas

Because of the absence of HMDA data for rural areas, the analysis for metropolitan underserved areas cannot be carried over to non-metropolitan areas. Based on discussions with rural lenders in 1995, the definition of underserved rural areas was established at the county level, since such lenders usually do not make distinctions on a census tract basis. But this definition parallels that used in metropolitan areas—specifically, a nonmetro county is classified as an underserved area if median income of families in the county does not exceed 95 percent of the greater of state nonmetro or national nonmetro median income, or minorities comprise 30 percent or more of the residents and the median income of families in the county does not exceed 120 percent of the greater of state nonmetro or national nonmetro median income. For nonmetro areas the median income component of the underserved areas definition is broader than that used for metropolitan areas. While tract income is

compared with area income for metropolitan areas, in rural counties income is compared with “enhanced income”—the greater of state nonmetro income and national nonmetro income. This is based on HUD’s analysis of 1990 census data, which indicated that comparing county nonmetro income only to state nonmetro income would lead to the exclusion of many lower-income low-minority counties from the definition, especially in Appalachia. Underserved counties account for 57 percent (8,091 of 14,419) of the census tracts and 54 percent of the population in rural areas. By comparison, the definition of metropolitan underserved areas encompassed 47 percent of metropolitan census tracts and 44 percent of metropolitan residents. The county-wide definition of rural underserved areas could give the GSEs an incentive to purchase mortgages in the “better served” portions of underserved counties which may face few, if any, barriers to accessing mortgage credit in rural areas. This issue is discussed in more detail in the proposed Rule.

The demographic characteristics of served and underserved counties are first presented in this section. Next, a literature review of recent studies provides an overview of rural mortgage markets, GSE activity, and the

growing demand for manufactured housing in rural housing markets. It also discusses characteristics of rural housing markets that lead to higher interest rates and mortgage access problems and makes some policy recommendations for addressing market inefficiencies.

1. Demographics

As discussed, majorities of rural households and rural counties fall under the definition of underserved areas. As shown in Table B.4, rural underserved counties have higher unemployment, poverty rates, minority shares of households, and homeownership rates than rural served counties. The poverty rate in underserved rural counties (21.2 percent) is nearly twice that in served rural counties (12.2 percent). Joblessness is more common, with average unemployment rates of 8.3 percent in underserved counties and 5.9 percent in served counties. Minorities make up 20.8 percent of the residents in underserved counties and 7.4 percent in served counties. Homeownership is slightly higher in underserved counties (72.4 percent) than in served counties (70.8 percent).

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Table B.4

**Socioeconomic Characteristics of Underserved Counties
in Non-Metropolitan Areas**

	Served Counties	Underserved Counties	Total
Counties	786	1,511	2,297
Households	8,618,519	10,097,825	18,716,344
Population	23,075,383	27,467,972	50,543,355
Unemployment Rate	5.9%	8.3%	7.1%
Poverty Rate	12.2%	21.2%	17.1%
Dropout Rate	16.3%	22.7%	19.8%
Percent Female Household With Children	14.3%	17.5%	16.1%
Percent African-American	3.9%	12.4%	8.5%
Percent Minority	7.4%	20.8%	14.7%
Percent Owner-Occupied	70.8%	72.4%	71.6%
Percent Renter	29.2%	27.6%	28.4%

Source: 1990 Census.

Some differences exist between metro and nonmetro underserved areas. The definition is somewhat more inclusive in nonmetro areas—the majority of the nonmetro population lives in underserved counties, while the majority of the metropolitan population lives in served areas. The majority of units in underserved metropolitan areas are occupied by renters, while the majority of units in underserved rural counties are occupied by owners. But poverty and unemployment rates are higher in underserved areas than in served areas in both nonmetropolitan and metropolitan areas.

2. Literature Review

Research related to housing and mortgage finance issues in rural areas is reviewed in this section. It finds that lack of competition between rural lenders and lack of participation in secondary mortgage markets may contribute to higher interest rates and lower mortgage availability in rural areas. The mortgages purchased by the GSEs on properties in underserved counties are not particularly focused on lower-income borrowers and first-time homebuyers, which suggests that additional research needs to be conducted to target areas in nonmetropolitan areas which experience difficulty accessing mortgage credit. The role of manufactured housing in providing affordable housing in rural areas is also discussed.

*Mikesell Study (1998).*³⁹ A study by Jim Mikesell provides an overview of mortgage lending in rural areas. It finds that home loans in rural areas have higher costs, which can be attributed to at least three factors that characterize rural mortgage markets. First, the fixed cost associated with rural lending may be higher as a result of the smaller loan size and remoteness of many rural areas. Second, there are fewer mortgage lenders in rural areas competing for business, which may account for higher interest rates. Third, the secondary mortgage market is not as well developed as in metropolitan areas.

Higher interest rates for rural mortgages are documented by the Federal Housing Finance Board's monthly survey of conventional home purchase mortgages. On average, relative to rates on mortgages in urban areas, rates on mortgages in rural areas in 1997 were 8 basis points (bp) higher on 30-year fixed rate mortgages (FRMs), 18 bp higher for 15-year FRMs, 38 bp higher for adjustable-rate mortgages (ARMs), and 52 bp higher for nonstandard loans.⁴⁰ The higher rates in rural areas translate into differences in monthly payments of \$3 to \$16 for a \$100,000 mortgage.

Mikesell finds that property location and small loan size are two factors that make lending more costly in rural areas. Borrower characteristics, such as income, assets, and credit history, and lender characteristics, such as ownership, size, and location, might influence loan pricing, but the influence of these factors could not be tested due to lack of data.

Rural-based lenders are fewer and originate a smaller volume of loans than their urban counterparts. These factors contribute to less competition between rural lenders and a less efficient housing finance market, which result in higher costs for rural borrowers.

Rural lenders are less likely than urban lenders to participate in the secondary mortgage market. As a result, rural borrowers do not receive the benefits associated with the secondary market—the increased competition between lenders, the greater potential supply of mortgage financing, and the alignment of financing costs more closely with those in urban markets.

Some obstacles for rural lenders participating in the secondary market are that borrower characteristics and remote properties may not conform to the secondary market's underwriting standards. Rural households may have their borrowing capacity reduced by loan qualification standards which discount income that varies widely from year to year and income from self-employment held for less than several years. Rural properties may have one or more of the following characteristics which preclude a mortgage from being purchased by the GSEs: excessive distance to a firehouse, unacceptable water or sewer facilities, location on a less-than-all-weather road, and dated plumbing or electrical systems.

Mikesell concludes that increased participation by rural lenders in the secondary mortgage market would bring down lending costs and offset some of the higher costs characteristic of rural lending, and that HUD's goals for the GSEs could encourage such increased participation.

*MacDonald Study.*⁴¹ This study investigates variations in GSE market shares among a sample of 426 non-metropolitan counties in eight census divisions. Conventional conforming mortgage originations are estimated using residential sales data, adjusted to exclude non-conforming mortgages. Multivariate analysis is used to investigate whether the GSE market share differs significantly by location, after controlling for the economic, demographic, housing stock, and credit market differences among counties that could affect use of the secondary markets by lenders.⁴²

MacDonald has four main findings regarding mortgage financing and the GSEs' purchases in rural mortgage markets. First, smaller, poorer and less rapidly growing non-metro areas have less access to mortgage credit than larger, wealthier and more rapidly growing areas. Second, the mortgages that are originated in the former areas are seldom purchased by the GSEs. Third, higher-income borrowers are more likely, and first-time homebuyers are less likely, to be served by the GSEs in underserved areas than in served areas. This suggests that the GSEs are not reaching out to marginal borrowers in underserved nonmetropolitan areas. Finally, the GSEs serve a smaller proportion of the low-income market in rural areas than do depository institutions. This finding is consistent with studies of the GSEs' affordable lending performance in metropolitan areas.

With regard to the GSEs' underwriting guidelines MacDonald makes two points. First, the GSEs' purchase guidelines may adversely affect non-metro areas where many borrowers are seasonally- or self-employed and where houses pose appraisal problems. Second, MacDonald speculates that mortgage

originators in nonmetropolitan areas may interpret guidelines too conservatively, or may not try to qualify non-traditional borrowers for mortgages.

MacDonald also echoes the findings of Mikesell that the existence and extent of mortgage lending problems are difficult to identify in many rural areas because of the lack of comprehensive mortgage lending data. Problems that have been identified include the lack of market competition among small, conservative lending institutions typical in rural and non-metropolitan areas; consolidation and other changes in the financial services industry, which may have different consequences in rural areas than in urban areas; lack of access to government housing finance programs in more rural locations; and weak development of secondary market sources of funds in rural areas, exacerbating liquidity problems.

MacDonald discusses briefly the importance of low-cost homeownership alternatives in rural areas. One alternative is manufactured (mobile) housing. In general, manufactured housing is less costly to construct than site-built housing. Manufactured housing makes up more than 25 percent of the housing stock in rural counties in the South and Mountain states.

MacDonald concludes that the lower participation of the GSEs in underserved areas compared with served areas may result from additional risk components for some borrowers and from lack of sophistication by the lenders that serve small non-metro markets. In smaller and poorer counties, low volumes of loan sales to the GSEs may be a result of lower incomes and smaller populations. These counties may not have sufficient loan-generating activity to justify mortgage originators pursuing secondary market outlets.

*The Role of Manufactured Housing.*⁴³ The Joint Center for Housing Studies at Harvard University conducted a comprehensive study of the importance of manufactured housing as an affordable housing choice in rural communities. In all segments of the housing market, but especially in rural areas and among low-income households, manufactured housing is growing. Based on the American Housing Survey, in 1985, 61 percent of the manufactured housing stock was located in rural areas, compared with 70 percent in 1993. Between 1985 and 1993, manufactured housing increased over 2.2 percent annually while all other housing increased 0.7 percent per year. In 1993, 6.0 percent (or 6 million) of households lived in manufactured housing.

Since the 1970's, the face of manufactured housing has changed. Once a highly mobile form of recreational housing in this country, today manufactured housing provides basic quality, year-round housing for millions of American households. Most earlier units were placed in mobile home parks or on leased parcels of land. Today an increasing number of units are owned by households that also own the land on which the manufactured home is located.

Manufactured housing's appeal lies in its affordability. The low purchase price, downpayments, and monthly cash costs of manufactured housing provide households

who are priced out of the conventional housing market a means of becoming homeowners. The occupants of manufactured housing on average are younger, have less income, have less education and are more often white than occupants of single-family detached homes. This type of housing is often found in areas with persistent poverty, retirement destinations, areas for recreation and vacations, and commuting counties.

The manufactured housing industry is well positioned for continued growth. The affordability of manufacturing housing is increasingly attractive to the growing ranks of low-income households. Manufactured housing is becoming more popular among first-time homebuyers and the elderly, both of which are growing segments of the housing market. The migration of people to the South, where manufactured housing is already highly accepted, and to metropolitan fringes will further increase the demand for this type of housing.⁴⁴

D. Factor 3: Previous Performance and Effort of the GSEs in Connection With the Central Cities, Rural Areas and Other Underserved Areas Goal

As discussed in Sections B and C, HUD has structured the Geographically Targeted Goal to increase mortgage credit to areas underserved by the mortgage markets. This section looks at the GSEs' past performance to determine the impact the Geographically Targeted Goal is having on borrowers and neighborhoods, with particular emphasis on underserved areas. Section D.1 reports the past performance of each GSE with regard to the Geographically Targeted Goal. Section D.2 then examines the role that the GSEs are playing in funding single-family mortgages in underserved urban neighborhoods based on HUD's analysis of GSE and HMDA data. Section D.3 concludes this section with an analysis of the GSEs' purchases in rural (nonmetropolitan) areas.

1. GSE Performance on the Geographically Targeted Goal

This section discusses each GSE's performance under the Geographically Targeted Goal over the 1993–99 period. The data presented here are "official results" *i.e.*, they are based on HUD's in-depth analysis of the loan-level data submitted annually to the Department, subject and the counting provisions contained in Subpart B of HUD's December 1, 1995 Regulation of Fannie Mae and Freddie Mac. As explained below, in some cases these "official results" differ to some degree from goal performance reported by the GSEs in their Annual Housing Activities Reports to the Department.

HUD's goals specified that in 1996 at least 21 percent of the number of each GSE's units eligible to count toward the Geographically Targeted Goal should qualify as geographically targeted, and at least 24 percent should qualify in 1997 and 1998. Actual performance, based on HUD analysis of GSE loan-level data, was as follows:

	1996	1997	1998	1999
Fannie Mae:				
Units Eligible to Count Toward Goal	1,891,896	1,765,347	3,546,302	2,956,155
Geographically Targeted Units	532,434	508,746	958,233	791,593
Percent Geographically Targeted	28.1	28.8	27.0	26.8
Freddie Mac:				
Units Eligible to Count Toward Goal	1,325,900	1,180,517	2,658,556	2,245,087
Geographically Targeted Units	331,495	310,572	693,748	618,385
Percent Geographically Targeted	25.0	26.3	26.1	27.5

Thus, Fannie Mae and Freddie Mac surpassed the goals in 1996 by 7.1 percentage points and 4.0 percentage points, respectively. And both GSEs surpassed the 1997–99 goals by at least 2 percentage points in each of these three years.

Fannie Mae's performance on the Geographically Targeted Goal jumped sharply in just two years, from 23.6 percent in 1993 to 31.9 percent in 1995, before tailing off to 28.1 percent in 1996. As indicated, it then rose slightly to 28.8 percent in 1997, before tailing off to 27.0 percent in 1998 and 26.8 percent in 1999.⁴⁵ Freddie Mac has shown more steady gains in performance on the Geographically Targeted Goal, from 21.3 percent in 1993 to 24.2 percent in 1994, 25.0 percent in 1995–96, just over 26 percent in 1997–98, and 27.5 percent in 1999.⁴⁶

Fannie Mae's performance on the Geographically Targeted Goal has surpassed Freddie Mac's in every year from 1993 through 1998. However, Freddie Mac's 1999 performance represented a 26 percent increase over the 1993 level, exceeding the

14 percent increase for Fannie Mae. As a result, Freddie Mac's performance in 1999 (27.5 percent) was 103 percent of Fannie Mae's geographically targeted share last year (26.8 percent)—the only year in which Freddie Mac's performance on this goal has exceeded Fannie Mae's performance. The main reason why Freddie Mac moved past Fannie Mae in performance on the Geographically Targeted Goal last year is that the geographically-targeted share of Freddie Mac's total single-family mortgage purchases rose from 24.5 percent in 1998 to 26.7 percent in 1999, exceeding the corresponding increase for Fannie Mae, from 24.8 percent in 1998 to 25.5 percent in 1999. A second reason why Freddie Mac surpassed Fannie Mae in performance on this goal last year is that multifamily properties are "goal-rich"—that is, they are more likely to be in underserved areas than single-family units, and the multifamily share of purchases eligible for this goal rose slightly for Freddie Mac, from 8.3 percent in 1998 to 8.5 percent in 1999, but fell somewhat for Fannie Mae,

from 10.4 percent in 1998 to 9.8 percent in 1999.

2. GSEs' Mortgage Purchases in Metropolitan Neighborhoods

As shown in Table B.5, metropolitan areas accounted for about 85 percent of total GSE purchases under the Geographically Targeted Goal in 1998 and 1999. This section uses HMDA and GSE data for metropolitan areas to examine the neighborhood characteristics of the GSEs' mortgage purchases. In subsection 2.a, the GSEs' performance in underserved neighborhoods is compared with that of portfolio lenders and the overall market. This section therefore expands on the discussion in Appendix A, which compared the GSEs' funding of affordable loans with the overall conventional conforming market. In subsection 2.b., the characteristics of the GSEs' purchases within underserved areas are compared with those for their purchases in served areas.

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Table B.5
Fannie Mae and Freddie Mac Acquisitions of
Single-Family and Multifamily Units in
Underserved Metro and Nonmetro Areas in 1998 and 1999

	Fannie Mae		Freddie Mac	
	1998	1999	1998	1999
Metropolitan				
Number of Underserved Units	799,426	670,901	548,510	505,716
Percent of Total Units	25.5%	25.4%	24.2%	26.2%
Total	3,132,066	2,637,508	2,265,333	1,930,976
Nonmetropolitan				
Number of Underserved Units	158,806	120,693	145,237	112,669
Percent of Total Units	38.6%	38.1%	36.9%	37.7%
Total	410,911	316,855	393,120	298,964
Overall				
Number of Underserved Units	958,232	791,594	693,747	618,385
Percent of Total Units	27.0%	26.8%	26.1%	27.5%
Total Eligible*	3,546,302	2,956,155	2,658,556	2,245,087

* Overall totals may exceed the metro/nonmetro sum due to units in unidentified census tracts.

a. Comparisons With the Primary Market

Overview and Main Conclusions. Tables A.3 and A.4a in Appendix A provided information on the GSEs' funding of home purchase loans for properties located in underserved neighborhoods for the years 1993 to 1998. The findings with respect to the GSEs' funding of underserved neighborhoods are similar to those reported in Appendix A regarding the GSEs' overall affordable lending performance. While both GSEs improved their performance over the 1993–1998 period, they lagged the conventional conforming market in providing affordable loans to underserved neighborhoods. As discussed in Appendix A, the two GSEs showed very different patterns of lending—Freddie Mac was much less likely than Fannie Mae to fund home loans in underserved neighborhoods through 1998. The percentage of Freddie Mac's purchases financing properties in underserved census tracts was substantially less than the percentage of total market originations in these tracts; furthermore, by 1998 Freddie Mac had not made progress closing the gap with the primary market. Fannie Mae, on the other hand, was much closer to 1998 market levels in its funding of underserved areas. The GSE data for 1999 show a shift in these patterns—during 1999, Freddie Mac surpassed Fannie Mae in funding mortgages in underserved neighborhoods.

Freddie Mac—1993–1998. While Freddie Mac lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing home loans to underserved neighborhoods during the 1993–1998 period, it pulled ahead of Fannie Mae during 1999 in purchasing mortgages for properties located in urban underserved areas (discussed below). Over the 1993–1998 period, underserved census tracts accounted for 19.7 percent of Freddie Mac's single-family home mortgages, compared with 22.9 percent of Fannie Mae's purchases, 26.3 percent of loans originated and held in portfolio by depository lenders, and 24.5 percent of the overall conforming primary market. If the analysis is restricted to the 1996–98 period during which the current housing goals have been in effect, the data continue to show that Freddie Mac lagged the market in funding underserved

neighborhoods (see Table A.3 in Appendix A). In 1998, underserved census tracts accounted for 20.0 percent of Freddie Mac's purchases and 24.6 percent of loans originated in the conforming home purchase market, yielding a “Freddie Mac-to-market” ratio of only 0.81 (*i.e.* 20.0 divided by 24.6).

Fannie Mae—1993–1998. Over the longer 1993–98 period and the more recent 1996–98 period, Fannie Mae has lagged the market and portfolio lenders in funding properties in underserved areas, but to a much smaller degree than Freddie Mac. During the 1996–98 period, underserved tracts accounted for 22.9 percent of Fannie Mae's purchases, compared with 25.8 percent of loans retained in portfolio by depositories and with 24.9 percent of home loans originated in the conventional conforming market. Fannie Mae's performance is much closer to the market than Freddie Mac's performance, as can be seen by the “Fannie Mae-to-market” ratio of 0.92 for the 1996–98 period (*i.e.* 22.9 divided by 24.9). Fannie Mae's performance improved during 1997, due mainly to Fannie Mae's increased purchases during 1997 of prior-year mortgages in underserved neighborhoods. Overall, Fannie Mae's purchases of home loans in underserved areas increased from 22.3 percent in 1996 to 23.5 percent in 1997. The underserved area percentage for Fannie Mae's purchases of newly-originated mortgages was actually lower in 1997 (20.8 percent) than in 1996 (21.9 percent). This decline was offset by the fact that a particularly high percentage (30.1 percent) of Fannie Mae's 1997 purchases of prior-year mortgages was for properties in underserved areas. Thus, Fannie Mae improved its overall performance in 1997 by supplementing its purchases of newly-originated mortgages with purchases of prior-year mortgages targeted to underserved neighborhoods. As shown in Table A.4a in Appendix A, Fannie Mae continued this strategy in 1998, but not in 1999. The annual data in Table A.4a show the progress that Fannie Mae has made in closing the gap between its performance and that of the overall market. In 1992, underserved areas accounted for 18.3 percent of Fannie Mae's purchases and 22.2 percent of market originations, for a “Fannie Mae-to-market” ratio of 0.82. By 1998, underserved areas

accounted for 22.9 percent of Fannie Mae's purchases and 24.6 percent of market originations, for a higher “Fannie Mae-to-market” ratio of 0.93. Freddie Mac, on the other hand, fell further behind the market during this period. In 1992, Freddie Mac had a slightly higher underserved area percentage (18.6 percent) than Fannie Mae (18.3 percent). However, Freddie Mac's underserved area percentage had only increased to 20.0 percent by 1998 (versus 22.9 percent for Fannie Mae). Thus, the “Freddie Mac-to-market” ratio fell from 0.84 in 1992 to 0.81 in 1998.

1999 GSE Purchases. In 1999, Freddie Mac's funding of both home purchase loans and total (combined home purchase and refinance) loans in underserved neighborhoods improved to the point that it surpassed Fannie Mae's performance. In 1999, underserved areas accounted for 21.2 percent of Freddie Mac's purchases of home purchase loans in metropolitan areas—a figure slightly higher than the 20.6 percent for Fannie Mae. With respect to combined home purchase and refinance loans, Freddie Mac's underserved areas percentage in metropolitan areas jumped by 2.6 percentage points, from 20.9 percent in 1998 to 23.5 percent in 1999, while the corresponding percentage for Fannie Mae increased by only 0.6 percentage point, from 21.2 percent in 1998 to 21.8 percent in 1999.

Down Payment Characteristics. Table B.6 reports the down payment and borrower income characteristics of mortgages that the GSEs purchased in underserved areas during 1999. Two points stand out. First, loans on properties in underserved areas were more likely to have a high loan-to-value ratio than loans on properties in served areas. Specifically, about 15.4 percent of loans in underserved areas had a down payment less than ten percent, compared with 13.4 percent of all loans purchased by the GSEs. Second, loans to low-income borrowers in underserved areas were typically high down payment loans. Approximately 70 percent of the GSE-purchased loans to very low-income borrowers living in underserved areas had a down payment more than 20 percent.

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Table B.6
Down Payment Characteristics of GSE Purchases in Underserved Areas, 1999

<u>GSE Purchases</u>	<u>Size of Down Payment</u>				<u>Total¹</u>
	<u>Less Than 5</u> <u>Percent Down</u>	<u>5 to 10</u> <u>Percent Down</u>	<u>10 to 20</u> <u>Percent Down</u>	<u>20 Percent or</u> <u>More Down</u>	
All Loans	118,425	486,288	632,894	3,274,965	4,512,572
Loans in Underserved Areas	41,361	130,432	174,728	767,420	1,113,941
Very- Low-Income Loans At or Below Median Income Loans	8,329	19,385	24,675	122,597	174,986
Income Loans	23,824	62,943	79,976	348,325	515,068
<u>Percentage Distribution</u>					
All Loans	2.6%	10.8%	14.0%	72.6%	100.0%
Loans in Underserved Areas	3.7%	11.7%	15.7%	68.9%	100.0%
Very- Low-Income Loans Less- Than-Median Income Loans	4.8%	11.1%	14.1%	70.1%	100.0%
Income Loans	4.6%	12.2%	15.5%	67.6%	100.0%

Source: Data include all owner-occupied one-unit mortgages (homepurchase, refinance, and second loans) purchased by the GSEs in underserved areas (both metropolitan and non-metropolitan) in 1999.

¹ Loans with missing down payments are excluded.

Table B.7
Loan and Borrower Characteristics of Single-Family
Mortgages Purchased by the GSEs in Metropolitan Areas, 1999

Loan and Borrower Characteristics	Fannie Mae		Freddie Mac		Total	
	Served	Underserved	Served	Underserved	Served	Underserved
Number of Loans	1,645,663	437,769	1,227,273	362,704	2,872,936	800,473
Loan Purpose						
Home Purchase	46.8 %	43.7 %	43.6 %	38.2 %	45.4 %	41.2 %
Refinancing	53.2	56.3	56.4	61.8	54.6	58.8
Origination Year						
Current Year	29.7 %	29.0 %	27.2 %	27.7 %	28.7 %	28.4 %
Prior Years	70.3	71.0	72.8	72.3	71.3	71.6
Loan-to-Value Ratio						
Over 95%	1.8 %	3.4 %	1.6 %	2.3 %	1.7 %	2.9 %
91-95%	11.0	12.6	10.2	11.1	10.6	11.9
81-90%	13.6	15.3	13.1	15.0	13.4	15.1
61-80%	54.2	53.2	54.1	54.3	54.1	53.7
60% or Less	19.4	15.5	21.1	17.2	20.1	16.3
Income of Borrower(s)						
60% of Area Median or Below	8.7 %	18.6 %	9.3 %	19.7 %	8.9 %	19.1 %
61-100% of Median	26.6	35.7	27.7	35.6	27.0	35.6
Below Area Median	35.2	54.3	36.9	55.3	35.9	54.7
Over 100% of Median	64.8	45.7	63.1	44.7	64.1	45.3
First-time Home Buyer	11.2 %	13.9 %	9.5 %	9.8 %	10.4 %	12.0 %
Race/National Origin of Borrower						
White	88.1 %	69.0 %	89.3 %	70.9 %	88.6 %	69.9 %
African American	2.2	7.3	2.3	8.2	2.2	7.7
Hispanic	3.3	13.4	3.4	13.0	3.3	13.2
Asian or Pacific Islander	3.7	7.4	3.5	6.1	3.6	6.8
American Indian or Alaskan Native	0.4	0.4	0.3	0.4	0.3	0.4
Other	2.4	2.5	1.2	1.4	1.9	2.0
Age of Borrower						
Under 30	11.0 %	12.5 %	10.6 %	11.7 %	10.9 %	12.2 %
30-39	33.5	31.1	32.7	30.8	33.2	31.0
40 and Over	55.4	56.4	56.7	57.4	56.0	56.8
Gender of Borrower(s)						
All Male	18.1 %	24.0 %	17.5 %	21.9 %	17.9 %	23.1 %
All Female	16.6	21.9	17.4	22.0	16.9	21.9
Male and Female	65.3	54.1	65.0	56.1	65.2	55.0

Source: HUD analysis of GSEs' loan-level data on mortgages on owner-occupied one-unit properties. In computing the percentages, missing data are excluded.

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b. Characteristics of GSEs' Purchases of Mortgages on Properties in Metropolitan Underserved Areas

Several characteristics of loans purchased by the GSEs in metropolitan underserved areas are presented in Table B.7. As shown, borrowers in underserved areas are more likely than borrowers in served areas to be first-time homebuyers, females, and older

than 40 or younger than 30. And, as expected, they are more likely to have below-median income and to be members of minority groups. For example, first-time homebuyers make up 12.0 percent of the GSEs' mortgage purchases in underserved areas and 10.4 percent of their business in served areas. In underserved areas, 54.7 percent of borrowers had incomes below the area median, compared with 35.9 percent of borrowers in served areas.

Minorities' share of the GSEs' mortgage purchases in underserved areas (30.1 percent) was nearly three times their share in served areas (11.4 percent). And the pattern was even more pronounced for African Americans and Hispanics, who accounted for 20.9 percent of the GSEs' business in underserved areas, but only 5.5 percent of their purchases in served areas.

3. *GSE Mortgage Purchases in Nonmetropolitan Areas*

Nonmetropolitan mortgage purchases made up 13 percent of the GSEs' total mortgage purchases in 1999. Mortgages in underserved counties made up 39 percent of the GSEs' business in nonmetropolitan areas.⁴⁷

Unlike the underserved areas definition for metropolitan areas, which is based on census tracts, the rural underserved areas definition is based on counties. Rural lenders argued that they identified mortgages by the counties in which they were located rather than the census tracts; and therefore, census tracts were not an operational concept in rural areas. Market data on trends in mortgage

lending for metropolitan areas is provided by the Home Mortgage Disclosure Act (HMDA); however, no comparable data source exists for rural mortgage markets. The absence of rural market data is a constraint for evaluating credit gaps in rural mortgage lending and for defining underserved areas.

One concern is whether the broad definition overlooks differences in borrower characteristics in served and underserved counties that should be included. Table B.8 compares borrower and loan characteristics for the GSEs' mortgage purchases in served and underserved areas.

The GSEs are slightly less likely to purchase loans for first-time homebuyers and more likely to purchase mortgages for high-

income borrowers in underserved than in served counties. Mortgages to first-time homebuyers accounted for 8.4 percent of the GSEs' 1999 mortgage purchases in served counties, compared with 7.3 percent of their purchases in underserved counties. Surprisingly, borrowers in served counties were more likely to have incomes below the median than in underserved counties (37.9 percent, compared to 33.6 percent). These findings lend some support to the claim that, in rural underserved counties, the GSEs purchase mortgages for borrowers that probably encounter few obstacles in obtaining mortgage credit.

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Table B.8
Loan and Borrower Characteristics of Single-Family
Mortgages Purchased by the GSEs In Non-Metropolitan Counties, 1999

Loan and Borrower Characteristics	Fannie Mac		Freddie Mac		Total	
	Served	Underserved	Served	Underserved	Served	Underserved
Number of Loans	175,983	112,967	169,600	107,850	345,583	220,817
Loan Purpose						
Home Purchase	39.1 %	37.9 %	37.3 %	36.3 %	38.2 %	37.1
Refinancing	60.9	62.1	62.7	63.7	61.8	62.9
Origination Year						
Current Year	27.2 %	26.8 %	25.9 %	26.9 %	26.5 %	26.9
Prior Years	72.8	73.1	74.1	73.1	73.5	73.1
Loan-to-Value Ratio						
Over 95%	2.3 %	2.5 %	1.7 %	1.6 %	2.0 %	2.1
91-95%	10.7	11.6	9.6	10.3	10.2	10.9
81-90%	13.3	14.7	12.3	13.6	12.8	14.1
61-80%	53.9	53.2	55.3	55.0	54.6	54.1
60% or Less	19.8	18.1	21.1	19.4	20.4	18.7
Income of Borrower(s)						
60% of Area Median or Below	9.5 %	8.2 %	10.0 %	9.0 %	9.7 %	8.6
61-100% of Median	27.9	24.2	28.3	25.9	28.1	25.0
Below Area Median	37.4	32.3	38.3	34.9	37.9	33.6
Over 100% of Median	62.6	67.7	61.7	65.1	62.1	66.4
First-time Home Buyer	8.8 %	7.9 %	8.0 %	6.8 %	8.4 %	7.3
Race/National Origin of Borrower						
White	95.7 %	90.9 %	96.4 %	92.9 %	96.0 %	91.9
African American	1.0	2.8	0.9	2.4	0.9	2.6
Hispanic	1.3	3.2	1.3	2.9	1.3	3.0
Asian or Pacific Islander	0.6	1.4	0.5	0.7	0.5	1.0
American Indian or Alaskan Native	0.4	0.7	0.3	0.6	0.3	0.6
Other	1.2	1.1	0.5	0.6	0.9	0.8
Age of Borrower						
Under 30	12.2	12.3	12.1	12.3	12.2	12.3
30-39	31.2	29.3	30.9	28.7	31.1	29.0
40 and Over	56.6	58.4	56.9	59.0	56.8	58.7
Gender of Borrower(s)						
All Male	17.6	17.8	16.5	16.7	17.0	17.3
All Female	13.3	12.7	13.5	13.2	13.4	12.9
Male and Female	69.1	69.5	70.0	70.1	69.6	69.8

Source: HUD analysis of GSEs' loan-level data on mortgages on owner-occupied one-unit properties. In computing the percentages, missing data are excluded.

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There are similarities and differences between the types of loans that Fannie Mae and Freddie Mac purchase in served and underserved counties. The GSEs are similar in that they are more likely to purchase refinance loans in underserved counties than in served counties and that, in general, mortgage purchases with loan-to-value ratios

above 80 percent are more likely to be in underserved counties than in served counties. The GSEs differ in that Freddie Mac is more likely to purchase seasoned mortgages in served than in underserved counties, while the reverse is true for Fannie Mae.

E. Factor 4: Size of the Conventional Conforming Mortgage Market for Underserved Areas

HUD estimates that underserved areas account for 29-32 percent of the conventional conforming mortgage market. The analysis underlying this estimate is detailed in Appendix D.

F. Factor 5: Ability To Lead the Industry

This factor is the same as the fifth factor considered under the goal for mortgage purchases on housing for low- and moderate-income families. Accordingly, see Section G of Appendix A for a discussion of this factor.

G. Factor 6: Need to Maintain the Sound Financial Condition of the Enterprises

HUD has undertaken a separate, detailed economic analysis of this rule, which includes consideration of (a) the financial returns that the GSEs earn on loans in underserved areas and (b) the financial safety and soundness implications of the housing goals. Based on this economic analysis and discussions with the Office of Federal Housing Enterprise Oversight, HUD concludes that the goals raise minimal, if any, safety and soundness concerns.

H. Determination of the Geographically-Targeted Areas Housing Goals

The annual goal for each GSE's purchases of mortgages financing housing for properties located in geographically-targeted areas (central cities, rural areas, and other underserved areas) is established at 31 percent of eligible units financed in each of calendar years 2001–03. The 2001–03 goal will remain in effect in subsequent years,

unless changed by the Secretary prior to that time. The goal represents an increase over the 1996 goal of 21 percent and the 1997–2000 goal of 24 percent. However, it is commensurate with the market share estimates of 29–32 percent, presented in Appendix D.

This section summarizes the Secretary's consideration of the six statutory factors that led to the choice of these goals. It discusses the Secretary's rationale for defining these geographically-targeted areas and it compares the characteristics of such areas and untargeted areas. The section draws heavily from earlier sections which have reported findings from HUD's analyses of mortgage credit needs as well as findings from other research studies investigating access to mortgage credit.

1. Credit Needs in Metropolitan Areas

HUD's analysis of HMDA data shows that mortgage credit flows in metropolitan areas are substantially lower in high-minority and low-income neighborhoods and mortgage denial rates are much higher for residents of such neighborhoods. The economics literature discusses the underlying causes of these disparities in access to mortgage credit, particularly as related to the roles of discrimination, "redlining" of specific

neighborhoods, and the barriers posed by underwriting guidelines to potential minority and low-income borrowers. Studies reviewed in Section B of this Appendix found that the racial and income composition of neighborhoods influence mortgage access even after accounting for demand and risk factors that may influence borrowers' decisions to apply for loans and lenders' decisions to make those loans. Therefore, the Secretary concludes that high-minority and low-income neighborhoods in metropolitan areas are underserved by the mortgage system.

2. Identifying Underserved Portions of Metropolitan Areas

To identify areas underserved by the mortgage market, HUD focused on two traditional measures used in a number of studies based on HMDA data:⁴⁸ application denial rates and mortgage origination rates per 100 owner-occupied units.⁴⁹ Tables B.1 and B.2 in Section B of this Appendix presented detailed data on denial and origination rates by the racial composition and median income of census tracts for metropolitan areas.⁵⁰ Aggregating this data is useful in order to examine denial and origination rates for broader groupings of census tracts:

Minority composition (percent)	Denial rate (percent)	Orig. rate	Tract income (percent)	Denial rate (percent)	Orig. rate
0–30	11.4	16.4	Less than 90	19.8	10.7
30–50	17.2	12.5	90–120	13.0	15.5
50–100	21.9	9.4	Greater than 120	8.3	19.2

Two points stand out from these data. First, high-minority census tracts have higher denial rates and lower origination rates than low-minority tracts. Specifically, tracts that are over 50 percent minority have nearly twice the denial rate and two-thirds the origination rate of tracts that are under 30 percent minority.⁵¹ Second, census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. Tracts with income less than or equal to 90 percent of area median income have nearly 2.5 times the denial rate and three-fourths the origination rate for tracts with income over 120 percent of area median income.

In 1995, HUD's research determined that "underserved areas" could best be characterized in metropolitan areas as census tracts with minority population of at least 30 percent in 1990 and/or census tract median income no greater than 90 percent of area median income in 1990, excluding high-minority high-income tracts. These cutoffs produced sharp differentials in denial and

origination rates between underserved areas and adequately served areas. For example, the mortgage denial rate in underserved areas (19.4 percent) was nearly twice that in adequately served areas (10.3 percent) in 1999.

These minority population and income thresholds apply in the suburbs as well as in OMB-defined central cities. HUD's research has found that the average denial rate in underserved suburban areas is almost twice that in adequately served areas in the suburbs. (See Figure B.1 in Section B of this Appendix.) Thus HUD uses the same definition of underserved areas throughout metropolitan areas—there is no need to define such areas differently in central cities and in the suburbs. And HUD's definition, which covers 57 percent of the central city population and 33 percent of the suburban population, is clearly preferable to a definition which would count 100 percent of central city residents and zero percent of suburban residents as living in underserved areas.

This definition of metropolitan underserved areas includes 21,586 of the 46,904 census tracts in metropolitan areas, covering 44 percent of the metropolitan population. It includes 73 percent of the population living in poverty in metropolitan areas. The unemployment rate in underserved areas is more than twice that in served areas, and rental units comprise 52.4 percent of total units in underserved tracts, versus 28.6 percent of total units in served tracts. As shown in Table B.9, this definition covers most of the population in the nation's most distressed central cities: Newark (99 percent), Detroit (96 percent), Hartford (97 percent), and Cleveland (90 percent). The nation's five largest cities also contain large concentrations of their population in underserved areas: New York (62 percent), Los Angeles (69 percent), Chicago (77 percent), Houston (67 percent), and Philadelphia (80 percent).

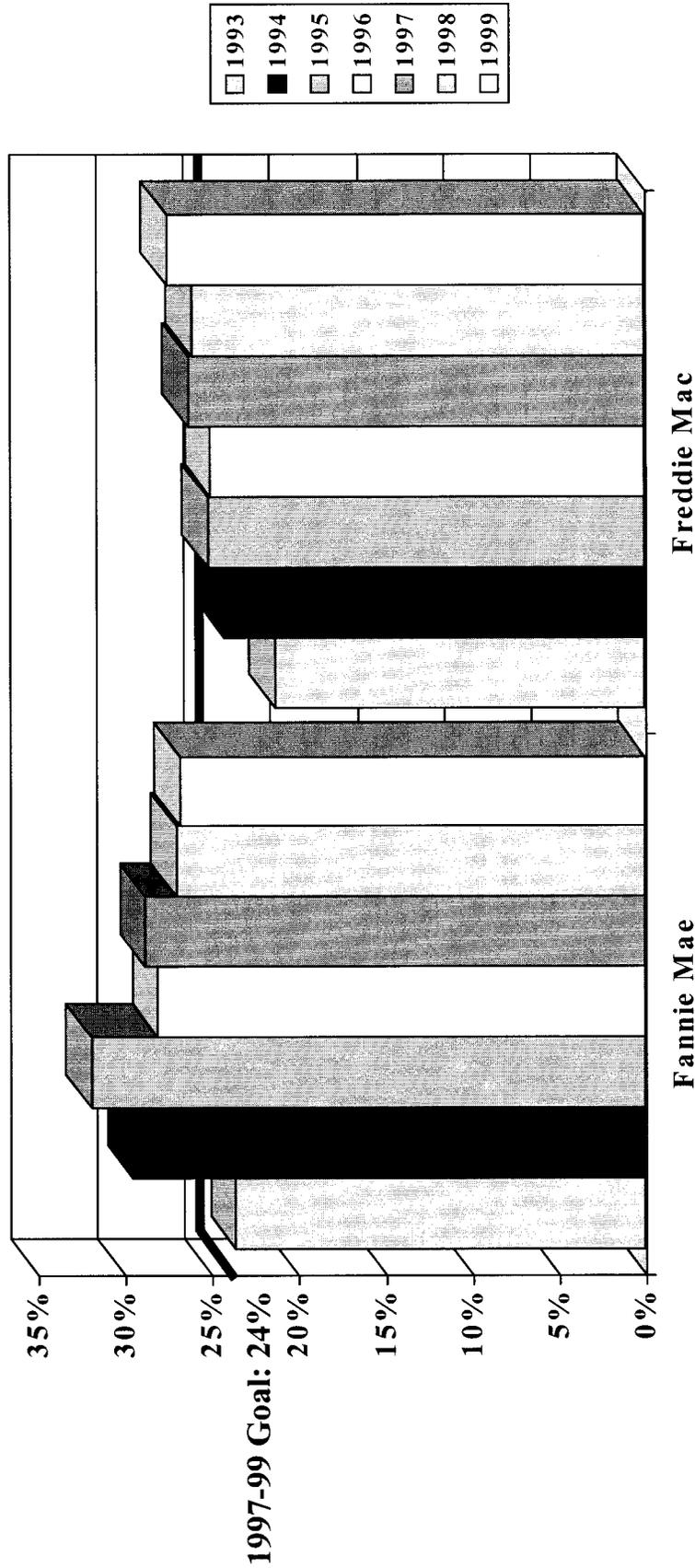
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Table B.9

Needy Areas in Central Cities Would be Covered

Large Cities with High Concentrations of Tracts Included in the Geographically Targeted Goal (Percent of Population)			
Newark			99%
Hartford			97%
Gary			96%
Detroit			96%
Jersey City			92%
Miami			91%
Baltimore			90%
Cleveland			90%
St. Louis			85%
Five Largest Cities			
New York			62%
Los Angeles			69%
Chicago			77%
Houston			67%
Philadelphia			80%
Central Cities with Small Concentrations			
<u>Large Cities</u>		<u>Small Cities</u>	
Raleigh	33%	Appleton, WI	6%
Tulsa	38%	Cedar Falls, IA	8%
Nashville-Davidson	41%	Scottsdale, AZ	11%
Oklahoma City	42%	Naples, FL	13%
Wichita	43%	Orem, UT	14%
Colorado Springs	44%	Wheeling, WV	20%
Columbus	46%	Salem, OR	19%
Phoenix	51%	Elkhart, IN	20%

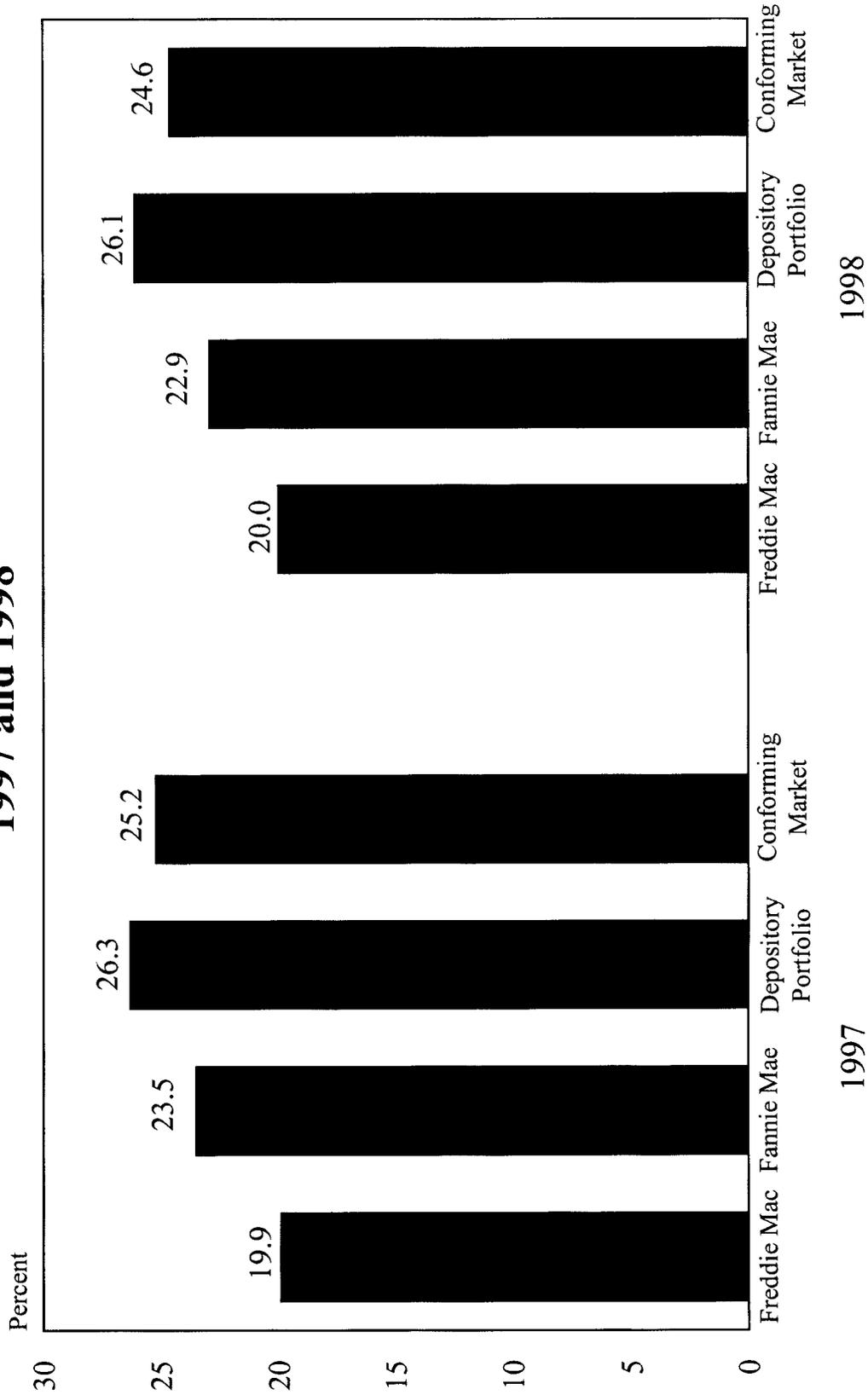
Figure B.2
Geographically Targeted Mortgage Purchases



Geographically Targeted Goal was 24% of units financed for 1997-99 (21% for 1996).

Source: HUD analysis of GSEs' loan-level data.

Figure B.3
The Share Of GSE And Conventional Conforming
Mortgages in Census Tracts Included in the
Geographically Targeted Goal,
1997 and 1998



Source: Conforming market and depository data are from 1997 and 1998 HMDA; GSE data are from loan-level data reported to HUD. Data are for single-family home purchase loans in metropolitan areas. See Table A.4a for further explanation.

3. Identifying Underserved Portions of Nonmetropolitan Areas

Recognizing the difficulty of defining rural underserved areas and the need to encourage GSE activity in such areas, HUD has chosen a rather broad, county-based definition of underservedness in rural areas. Specifically, a nonmetropolitan county is underserved if in 1990 (1) county median family income was less than or equal to 95 percent of the greater of state or national nonmetropolitan income or (2) county median family income was less than or equal to 120 percent of the greater of state or national nonmetropolitan income and county minority population was at least 30 percent of total county population. This definition includes 1,511 of the 2,305 counties in nonmetropolitan areas and covers 54 percent of the nonmetropolitan population. The definition does target the most disadvantaged rural counties—it includes as underserved areas 67 percent of the nonmetropolitan poor and 75 percent of nonmetropolitan minorities. The average poverty rate in underserved counties in 1990 was 21 percent, significantly greater than the 12 percent poverty rate in counties designated as adequately served. The definition also includes 84 percent of the population that resides in remote counties that are not adjacent to metropolitan areas and have fewer than 2,500 residents in towns.

4. Past Performance of the GSEs

The GSEs' performance on the geographically-targeted goal has improved significantly in recent years, as shown in Figure B.2. Fannie Mae's performance, as measure by HUD, increased sharply from 23.6 percent in 1993 to 31.9 percent in 1995, dropped to 28.1 percent in 1996, rose to 28.8 percent in 1997, and then dropped to 27.0 percent in 1998 and 26.8 percent in 1999. Freddie Mac's performance, as measured by HUD, rose from 21.8 percent in 1993 to 26.4 percent in 1995, followed by 25.0 percent in 1996, 26.3 percent in 1997, 26.1 percent in 1998, and 27.5 percent in 1999. Last year was the only year in which Freddie Mac's performance on this goal has exceeded Fannie Mae's performance.

While both GSEs improved their performance in underserved areas during the past six years, they lagged the conforming primary market in providing single-family home loans to distressed neighborhoods. As discussed in Section D, the GSEs show different patterns of lending—through 1998 Freddie Mac was less likely than Fannie Mae to purchase home loans on properties in low-income and high-minority neighborhoods. During the 1996–98 period, Freddie Mac lagged Fannie Mae, portfolio lenders, and the overall conforming market in providing funds to underserved neighborhoods. As shown in Figure B.3, underserved areas accounted for 20.0 percent of Freddie Mac's 1998 purchases of home loans, compared with 22.9 percent of Fannie Mae's purchases, 26.1 percent of home loans retained in depositories' portfolios, and 24.6 percent of the overall conforming market. While Freddie Mac did not make any progress during the 1993–98 period in reducing the gap between its performance and that of the

conventional conforming home purchase market, Fannie Mae improved its funding in underserved areas and closed the gap between its performance and the single-family primary market in funding low-income and high-minority neighborhoods.⁵² However, between 1998 and 1999, Freddie Mac improved its purchases in underserved areas so much that its performance surpassed Fannie Mae's performance. In 1999, underserved areas accounted for 21.2 (23.5) percent of Freddie Mac's purchases of home (total) loans, compared with 20.6 (21.8) percent of Fannie Mae's purchases of home (total) loans.

HUD also conducted an analysis of the share of the overall (single-family and multifamily) conventional conforming mortgage market accounted for by the GSEs. As shown in Tables A.7a and A.7b of Appendix A, the GSEs' purchases represented 40/55 percent of total dwelling units financed during 1997/1998, but they represented only 33/46 percent of the dwelling units financed in underserved neighborhoods. In other words, the GSEs accounted for less than half of the single-family and multifamily units financed in underserved areas. This suggests that there is room for the GSEs to increase their purchases in underserved neighborhoods.

5. Size of the Mortgage Market for Geographically-Targeted Areas

As detailed in Appendix D, the market for mortgages in geographically-targeted areas accounts for 29 to 32 percent of dwelling units financed by conventional conforming mortgages. In estimating the size of the market, HUD used alternative assumptions about future economic and market conditions that were less favorable than those that existed over the last five years. HUD is well aware of the volatility of mortgage markets and the possible impacts on the GSEs' ability to meet the housing goals. Should conditions change such that the goals are no longer reasonable or feasible, the Secretary has the authority to revise the goals.

6. The Geographically-Targeted Areas Housing Goal for 2001–03

There are several reasons that the Secretary is increasing the Geographically Targeted Areas Goal. *First*, the present 24 percent goal level for 1997–2000 and the GSEs' recent performance are below the estimated 29–32 percent of the primary mortgage market accounted for by units in properties located in geographically-targeted areas. Raising the goal reflects the Secretary's concern that the GSEs close the remaining gap between their performance and that of the primary mortgage market.

Second, the single-family-owner mortgage market in underserved areas has demonstrated remarkable strength over the past few years relative to the preceding period. This market had only recently begun to grow in 1993 and 1994, the latest period for which data was available when the 1996–99 goals were established in December 1995. But the historically high underserved areas share of the primary single-family mortgage market attained in 1994 has been maintained over the 1995–99 period. The three-average

of the underserved areas share of the single-family-owner mortgage market in metropolitan areas was 22.2 percent for 1992–94, but 25.1 percent for 1995–98 and 24.1 percent for the 1992–98 period as a whole.

Third, as discussed in detail in Appendix A, there are several market segments that would benefit from a greater secondary market role by the GSEs; many of these market segments are concentrated in underserved areas. For example, one such area is single-family rental dwellings. These properties, containing 1–4 rental units, are an important source of housing for families in low-income and high-minority neighborhoods. However, the GSEs' purchases accounted for only 14/19 percent of the single-family rental units financed in underserved areas during 1997/1998. The Secretary believes that the GSEs can do more to play a leadership role in providing financing for such properties. Examples of other market segments in need of an enhanced GSE role include small multifamily properties, rehabilitation loans, seasoned CRA loans, and manufactured housing. Additional efforts by the GSEs in these markets would benefit families living in underserved areas.

Finally, a wide variety of quantitative and qualitative indicators indicate that the GSEs' have the financial strength to improve their affordable lending performance. For example, combined net income has risen steadily over the last decade, from \$677 million in 1987 to \$6.1 billion in 1999, an average growth rate of 20 percent per year. This financial strength provides the GSEs with the resources to lead the industry in supporting mortgage lending for properties located in geographically-targeted areas.

Summary. Figure A.4 of Appendix A summarizes many of the points made in this section regarding opportunities for Fannie Mae and Freddie Mac to improve their overall performance on the Geographically-Targeted Goal. The GSEs' purchases provided financing for 6,507,173 dwelling units, which represented 55 percent of the 11,744,804 single-family and multifamily units that were financed in the conventional conforming market during 1998. However, in the underserved areas part of the market, the 1,679,464 units that were financed by GSE purchases represented only 46 percent of the 3,629,144 dwelling units that were financed in the market in 1998. Thus, there appears to be ample room for the GSEs to increase their purchases in underserved areas. It is hoped that expression of concern in the current rulemaking will foster additional effort by both GSEs to increase their purchases in underserved areas.

7. Conclusions

Having considered the projected mortgage market serving geographically-targeted areas, economic, housing and demographic conditions for 2001–03, and the GSEs' recent performance in purchasing mortgages on properties in geographically-targeted areas, the Secretary has determined that the annual goal of 31 percent in calendar year 2001 and the years following is feasible. Moreover, the Secretary has considered the GSEs' ability to

lead the industry as well as the GSEs' financial condition. The Secretary has determined that these goal levels are necessary and appropriate.

Endnotes to Appendix B

¹ Tracts are excluded from the analysis if median income is suppressed or there are no owner-occupied 1-4 unit properties. There are 2,033 such tracts. When reporting denial, origination, and application rates, tracts are excluded from the analysis if there are no purchase or refinance applications. Tracts are also excluded from the analysis if: (1) Group quarters constitute more than 50 percent of housing units or (2) there are less than 15 home purchase applications in the tract and the tract denial rates equal 0 or 100 percent. Excluded tracts account for a small percentage of mortgage applications (1.4 percent). These tracts are not excluded from HUD's underserved areas if they meet the income and minority thresholds. Rather, the tracts are excluded to remove the effects of outliers from the analysis.

² For the sake of brevity, in the remainder of this appendix, the term "central city" is used to mean "OMB-designated central city."

³ Alicia H. Munnell, Lynn Browne, James McEneaney, and Geoffrey Tootell. 1996. "Mortgage Lending in Boston: Interpreting HMDA Data," *American Economic Review*, 86(1) March:25-54.

⁴ *Mortgage Lending Discrimination: A Review of Existing Evidence* edited by Margery A. Turner and Felicity Skidmore, The Urban Institute: Washington, D.C., June 1999.

⁵ Margery A. Turner, Raymond J. Struyk, and John Yinger. *Housing Discrimination Study: Synthesis*, Washington, D.C., U.S. Department of Housing and Urban Development: 1991.

⁶ Margery A. Turner, "Discrimination in Urban Housing Markets: Lessons from Fair Housing Audits," *Housing Policy Debate*, Vol. 3, Issue 2, 1992, pp. 185-215.

⁷ The denial rates in Table B.1 are for home purchase mortgages. Denial rates are several percentage points lower for refinance loans than for purchase loans, but denial rates follow the same pattern for both types of loans: rising with minority concentration and falling with increasing income.

⁸ Alicia H. Munnell, Lynn E. Browne, James McEneaney, and Geoffrey M. B. Tootell, "Mortgage Lending in Boston: Interpreting HMDA Data," *American Economic Review*, March 1996.

⁹ A HUD study also found mortgage denial rates for minorities to be higher in ten metropolitan areas, even after controlling for credit risk. In addition, the higher denial rates observed in minority neighborhoods were not purely a reflection of the higher denial rates experienced by minorities. Whites experienced higher denial rates in some minority neighborhoods than in some predominantly white neighborhoods. Ann B. Schnare and Stuart A. Gabriel, "The Role of FHA in the Provision of Credit to Minorities," ICF Incorporated, prepared for the U.S. Department of Housing and Urban Development, April 25, 1994.

¹⁰ William C. Hunter, "The Cultural Affinity Hypothesis and Mortgage Lending

Decisions," WP-95-8, Federal Reserve Bank of Chicago, 1995.

¹¹ Since upfront loan fees are frequently determined as a percentage of the loan amount, lenders are discouraged from making smaller loans in older neighborhoods, because such loans generate lower revenue and are less profitable to lenders.

¹² Traditional underwriting practices may have excluded some lower income families that are, in fact, creditworthy. Such families tend to pay cash, leaving them without a credit history. In addition, the usual front-end and back-end ratios applied to applicants' housing expenditures and other on-going costs may be too stringent for lower income households, who typically pay larger shares of their income for housing (including rent and utilities) than higher income households.

¹³ These studies, which were conducted at the census tract level, typically involved regressing the number of mortgage originations (relative to the number of properties in the census tract) on characteristics of the census tract including its minority composition. A negative coefficient estimate for the minority composition variable was often interpreted as suggesting redlining. For a discussion of these models, see Eugene Perle, Kathryn Lynch, and Jeffrey Horner, "Model Specification and Local Mortgage Market Behavior," *Journal of Housing Research*, Volume 4, Issue 2, 1993, pp. 225-243.

¹⁴ For critiques of the early HMDA studies, see Andrew Holmes and Paul Horvitz, "Mortgage Redlining: Race, Risk, and Demand," *The Journal of Finance*, Volume 49, No. 1, March 1994, pp. 81-99; and Michael H. Schill and Susan M. Wachter, "A Tale of Two Cities: Racial and Ethnic Geographic Disparities in Home Mortgage Lending in Boston and Philadelphia," *Journal of Housing Research*, Volume 4, Issue 2, 1993, pp. 245-276.

¹⁵ Like early HMDA studies, an analysis of deed transfer data in Boston found lower rates of mortgage activity in minority neighborhoods. The discrepancies held even after controlling for income, house values and other economic and non-racial factors that might explain differences in demand and housing market activity. The study concluded that "the housing market and the credit market together are functioning in a way that has hurt African American neighborhoods in the city of Boston." Katherine L. Bradbury, Karl E. Case, and Constance R. Dunham, "Geographic Patterns of Mortgage Lending in Boston, 1982-1987," *New England Economic Review*, September/October 1989, pp. 3-30.

¹⁶ Using an analytical approach similar to that of Bradbury, Case, and Dunham, Anne Shlay found evidence of fewer mortgage loans originated in black census tracts in Chicago and Baltimore. See Anne Shlay, "Not in That Neighborhood: The Effects of Population and Housing on the Distribution of Mortgage Finance within the Chicago SMSA," *Social Science Research*, Volume 17, No. 2, 1988, pp. 137-163; and "Financing Community: Methods for Assessing Residential Credit Disparities, Market

Barriers, and Institutional Reinvestment Performance in the Metropolis," *Journal of Urban Affairs*, Volume 11, No. 3, 1989, pp. 201-223.

¹⁷ Individual loan characteristics include loan size (economies of scale cause lenders to prefer large loans to small loans) and all individual borrower variables included in the HMDA data (the applicant's income, sex, and race).

¹⁸ Their neighborhood risk proxies include median income and house value (inverse indicators of risk), percent of households receiving welfare, median age of houses, homeownership rate (an inverse indicator), vacancy rate, and the rent-to-value ratio (an inverse indicator). A high rent-to-value ratio suggests lower expectations of capital gains on properties in the neighborhood.

¹⁹ Schill and Wachter, page 271. Munnell, *et al.* reached similar conclusions in their study of Boston. They found that the race of the individual mattered, but that once individual characteristics were controlled, racial composition of the neighborhood was insignificant.

²⁰ Fred J. Phillips-Patrick and Clifford V. Rossi, "Statistical Evidence of Mortgage Redlining? A Cautionary Tale," *The Journal of Real Estate Research*, Volume 11, Number 1 (1996), pp.13-23.

²¹ Samuel L. Myers, Jr. and Tsze Chan, "Racial Discrimination in Housing Markets: Accounting for Credit Risk," *Social Science Quarterly*, Volume 76, Number 3 (September 1995), pp. 543-561.

²² For another study that uses HMDA data on reasons for denial to construct a proxy for bad credit, see Steven R. Holloway, "Exploring the Neighborhood Contingency of Race Discrimination in Mortgage Lending in Columbus, Ohio," *Annals of the Association of American Geographers*, 88(2), 1998, pp. 252-276. Holloway finds that mortgage denial rates are higher for black applicants (particularly those who are making large loan requests) in all-white neighborhoods than in minority neighborhoods, while the reverse is true for white applicants making small loan requests.

²³ See Geoffrey M. B. Tootell, "Redlining in Boston: Do Mortgage Lenders Discriminate Against Neighborhoods?," *Quarterly Journal of Economics*, 111, November, 1996, pp. 1049-1079; and "Discrimination, Redlining, and Private Mortgage Insurance", unpublished manuscript, October, 1995.

²⁴ Tootell notes that both omitted variables and the strong correlation between borrower race and neighborhood racial composition in segregated cities have made it difficult for previous studies to distinguish the impacts of geographic redlining from the effects of individual borrower discrimination. He can unravel these effects because he includes a direct measure of credit history and because over half of minority applicants in the Boston Fed data base applied for mortgages in predominantly white areas.

²⁵ Stephen L. Ross and Geoffrey M. B. Tootell, "Redlining, the Community Reinvestment Act, and Private Mortgage Insurance", unpublished manuscript, March, 1999.

²⁶ Lang, William W. and Leonard I. Nakamura, "A Model of Redlining," *Journal*

of *Urban Economics*, Volume 33, 1993, pp. 223–234.

²⁷ Calem, Paul S. “Mortgage Credit Availability in Low- and Moderate-Income Minority Neighborhoods: Are Information Externalities Critical?” *Journal of Real Estate Finance and Economics*, Volume 13, 1996, pp. 71–89.

²⁸ Ling, David C. and Susan M. Wachter, “Information Externalities and Home Mortgage Underwriting,” *Journal of Urban Economics*, Volume 44, 1998, pp. 317–332.

²⁹ Robert B. Avery, Patricia E. Beeson, and Mark S. Sniderman, “Neighborhood Information and Home Mortgage Lending,” *Journal of Urban Economics*, Volume 45, 1999, pp. 287–310.

³⁰ The Preamble to the 1995 Rule provides additional reasons why central city location should not be used as a proxy for underserved areas.

³¹ **Federal Register**, October 20, 1999, “Office of Management and Budget: Recommendations from the Metropolitan Area Standards Review Committee to the Office of Management and Budget Concerning Changes to the Standards for Defining Metropolitan Areas.”

³² William Shear, James Berkovec, Ann Dougherty, and Frank Nothhaft, “Unmet Housing Needs: The Role of Mortgage Markets,” *Journal of Housing Economics*, Volume 4, 1996, pp. 291–306. These researchers regressed the number of mortgage originations per 100 properties in the census tract on several independent variables that were intended to account for some of the demand and supply (*i.e.*, credit risk) influences at the census tract level. The tract’s minority composition and central city location were included to test if these characteristics were associated with underserved neighborhoods after controlling for the demand and supply variables. Examples of the demand and supply variables at the census tract level include: tract income relative to the area median income, the increase in house values between 1980 and 1990, the percentage of units boarded up, and the age distributions of households and housing units. See also Susan Wharton Gates, “Defining the Underserved,” *Secondary Mortgage Markets*, 1994 Mortgage Market Review Issue, 1995, pp. 34–48.

³³ For example, census tracts at 80 percent of area median income were estimated to have 8.6 originations per 100 owners as compared with 10.8 originations for tracts over 120 percent of area median income.

³⁴ Shear *et al.*, p. 18.

³⁵ See Avery, *et al.*

³⁶ Avery *et al.* find very large unadjusted differences in denial rates between white and minority neighborhoods, and although the gap is greatly reduced by controlling for applicant characteristics (such as race and income) and other census tract characteristics (such as house price and income level), a significant difference between white and minority tracts remains (for purchase loans, the denial rate difference falls from an unadjusted level of 16.7 percent to 4.4 percent after controlling for applicant and other census tract characteristics, and for refinance loans, the denial rate difference

falls from 21.3 percent to 6.4 percent). However, when between-MSA differences are removed, the gap drops to 1.5 percent and 1.6 percent for purchase and refinance loans, respectively. See Avery, *et al.*, p. 16.

³⁷ Avery, *et al.*, page 19, note that, other things equal, a black applicant for a home purchase loan is 3.7 percent more likely to have his/her application denied in an all-minority tract than in an all-white tract, while a white applicant from an all-minority tract would be 11.5 percent more likely to be denied.

³⁸ Methodological and econometric challenges that researchers will have to deal with are discussed in Mitchell Rachlis and Anthony Yezer, “Serious Flaws in Statistical Tests for Discrimination in Mortgage Markets,” *Journal of Housing Research*, Volume 4, 1993, pp. 315–336.

³⁹ Mikesell, Jim. *Can Federal Policy Changes Improve the Performance of Rural Mortgage Markets*, Economic Research Service, U.S. Department of Agriculture, Issues in Agricultural and Rural Finance. Agriculture Information Bulletin No. 724–12, August 1998.

⁴⁰ Standard mortgage types are 30-year fixed-rate mortgages, 15-year FRMs, and 30-year adjustable rate mortgages (ARMs). These are the ones most often traded in the secondary markets. Nonstandard mortgages generally have shorter terms than the standard mortgages.

⁴¹ MacDonald, Heather. *Fannie Mae and Freddie Mac in Rural Housing Markets: Does Space Matter?* Study funded as part of the 1997 GSE Small Grants by HUD’s Office of Policy Development and Research.

⁴² MacDonald constructs a county-level mortgage market data in rural areas using information collected by the Department of Revenue for counties and states. Annual Sales Ratio Studies conducted by many states’ Department of Revenue provide the number of sales for different property types. This is done by using residential sales recorded for property tax purposes. Other county-level variables used to compare rural counties are obtained from the 1990 Census of Population and Housing and Bureaus of labor Statistics. Data obtained from Census included county populations, racial composition, a variety of housing stock characteristics like home ownership rates, vacancy rates, proportion of owner-occupied mobile homes, median housing value in 1990, median age of the housing stock, proportion of units with complete plumbing, and access to infrastructure, *e.g.*, public roads and sewage systems. Data collected from the Bureau of Labor Statistics included unemployment rates and residential building permits.

⁴³ *The Future of Manufactured Housing*, Harvard University Joint Center for Housing Studies, February 1997.

⁴⁴ Though future demand for manufactured housing is promising, the Joint Center notes some continued obstacles to growth. Challenges for the industry to overcome include a lack of standardization of installation procedures and product guarantees, exclusionary zoning laws, and certain provisions of the national building code.

⁴⁵ The official figures on goal performance shown above for Fannie Mae are identical with the corresponding figures present by Fannie Mae in its Annual Housing Activity Report to HUD except for 1997 (HUD-reported: 28.8 percent/Fannie Mae-reported: 30.0 percent) and 1999 (26.8 percent/26.7 percent), reflecting minor differences in the application of counting rules.

⁴⁶ The official figures on goal performance shown above for Freddie Mac are identical with the corresponding figures presented by Freddie Mac in its Annual Housing Activity Reports to HUD except for 1999 (HUD-reported: 27.5 percent/Freddie Mac-reported: 27.6 percent), reflecting minor differences in the application of counting rules.

⁴⁷ Underserved areas make up about 56 percent of the census tracts in nonmetropolitan areas and 47 percent of the census tracts in metropolitan areas. This is one reason why underserved areas comprise a larger portion of the GSEs’ single-family mortgages in nonmetropolitan areas (38 percent) than in metropolitan areas (22 percent).

⁴⁸ HMDA provides little useful information on rural areas. Therefore, the HMDA data reported here apply only to metropolitan areas.

⁴⁹ Analysis of application rates are not reported here. Although application rates are sometimes used as a measure of mortgage demand, they provide no additional information beyond that provided by looking at both denial and origination rates. The patterns observed for application rates are still very similar to those observed for origination rates.

⁵⁰ As shown in Table B.1, no sharp breaks occur in the denial and origination rates across the minority and income deciles—mostly, the increments are somewhat similar as one moves across the various deciles that account for the major portions of mortgage activity.

⁵¹ The differentials in denial rates are due, in part, to differing risk characteristics of the prospective borrowers in different areas. However, use of denial rates is supported by the findings in the Boston Fed study which found that denial rate differentials persist, even after controlling for risk of the borrower. See Section B for a review of that study.

⁵² Although this goal is targeted to lower-income and high-minority areas, it does not mean that GSE purchase activity in underserved areas derives totally from lower income or minority families. In 1999, above-median income households accounted for 50 percent of the mortgages that the GSEs purchased in underserved areas. This suggests that these areas are quite diverse.

Appendix C—Departmental Considerations To Establish the Special Affordable Housing Goal

A. Introduction

1. Establishment of the Goal

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA) requires the Secretary to establish a special annual goal designed to adjust the purchase by each GSE of mortgages on rental and owner-occupied housing to

meet the unaddressed needs of, and affordable to, low-income families in low-income areas and very-low-income families (the Special Affordable Housing Goal).

In establishing the Special Affordable Housing Goal, FHEFSSA requires the Secretary to consider:

1. Data submitted to the Secretary in connection with the Special Affordable Housing Goal for previous years;
2. The performance and efforts of the GSEs toward achieving the Special Affordable Housing Goal in previous years;
3. National housing needs of targeted families;
4. The ability of the GSEs to lead the industry in making mortgage credit available for low-income and very-low-income families; and
5. The need to maintain the sound financial condition of the enterprises.

2. *The Goal*

The final rule provides that the Special Affordable Housing Goal is 20 percent in 2001–2003. Of the total Special Affordable Housing Goal for each year, each GSE must purchase multifamily mortgages in an amount at least equal to one percent of the GSE's combined (single-family and multifamily) annual average mortgage purchases over 1997–1999.

Approximately 23–26 percent of the conventional conforming mortgage market in 2001–03 would qualify under the Special Affordable Housing Goal as defined in the final rule, as projected by HUD.

Units that count toward the goal: Subject to further provisions discussed in the Preamble to this final rule regarding seasoned loans, units that count toward the Special Affordable Housing Goal include units occupied by low-income owners and renters in low-income areas, and very low-income owners and renters. Other low-income rental units in multifamily properties count toward the goal where at least 20 percent of the units in the property are affordable to families whose incomes are 50 percent of area median income or less, or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less.

B. Summary and Response to Comments

1. *Multifamily Subgoal Level*

HUD's proposed rule would have set the multifamily subgoal at 0.9 percent of the dollar volume of combined (single-family and multifamily) 1998 mortgage purchases in calendar year 2000, and 1.0 percent in each of calendar years 2001–2003. This would have implied the following thresholds for the two GSEs:

	2000 (in billions)	2001–2003 (in billions)
Fannie Mae	\$3.31	\$3.68
Freddie Mac	2.46	2.73

Both GSEs opposed establishing the special affordable multifamily subgoal as a percentage of their 1998 transaction volume, stating that 1998 was in some respects an

unusual year in the mortgage markets. Instead, they both recommended that the special affordable multifamily subgoal be established as a percentage of a five-year average of each GSEs' transactions volume. Freddie Mac commented further that HUD's proposed subgoal was "unreasonably high."

Many other commenters supported the multifamily subgoal, although they questioned whether 1998 was the appropriate base year upon which to establish the subgoal. Some commenters argued that the proposed subgoal was too high, in light of an expected decline in multifamily origination volume. Others argued that the subgoal was too low, based on the needs of very low- and low-income families and families in rural areas. Comments were received from some who felt the subgoal should be percentage-based and move from year to year. Still other commenters felt that the multifamily subgoal should be eliminated, as it no longer appeared to serve a purpose, particularly since Freddie Mac had re-entered the multifamily market.

From its inception, the multifamily subgoal has been viewed as a means for expanding and maintaining Freddie Mac's presence in the multifamily mortgage market. Both the multifamily mortgage market and Freddie Mac's multifamily transactions volume have grown significantly during the 1990s, indicating both increased opportunity and capacity to grow by Freddie Mac. While Freddie Mac continues to lag behind Fannie Mae somewhat in its multifamily volume, it appears to be within reach of catching up with its larger competitor with regard to the multifamily proportion of total purchases. In 1999, Fannie Mae's multifamily mortgage purchases were 9.5 percent of its total mortgage purchases and Freddie Mac's multifamily mortgage purchases were 8.3 percent of its total mortgage purchases.

Freddie Mac's multifamily special affordable transactions volume was \$2.7 billion in 1998 and \$2.3 billion in 1999, showing that Freddie Mac does have the capacity to generate significant multifamily special affordable transactions volume in a favorable market environment. At the same time, however, the Department is mindful of the fact that multifamily market conditions experienced during 1998–1999 may not be representative of future years. Because of extensive multifamily refinancing during 1998–1999, in particular, in conjunction with the widespread use of "lockout" provisions which place significant limitations on borrower's right to refinance recently originated loans, HUD expects conventional multifamily origination volume in 2001–2003 to be somewhat lower than the levels reached during 1998–1999. Based on partial-year information collected by the Department on GSE and CMBS multifamily transactions volume during 2000, it appears that origination volume will be somewhat lower this year than in 1999. Taking into consideration new information and data not available at the time HUD published its proposed GSE rule in March of 2000, the Department has determined that a modest reduction in multifamily special affordable goal thresholds relative to those in the proposed rule is reasonable and appropriate.

There is merit to the view that 1998 was an unusual year in the mortgage markets. HUD's motivation in setting the subgoal based on 1998 transactions volume was to establish the subgoal in a fair and reasonable manner, given the difference between the two GSEs in size and capacity. HUD selected a subgoal of one percent of 1998 transactions volume in recognition of the increased capacity of the GSEs to conduct multifamily special affordable lending, as well as the need to challenge the GSEs to maintain and expand their commitment to this segment of the market in a manner feasible and consistent with safety and soundness. Now that more recent data are available, it is apparent that establishing the subgoal in a manner taking 1999 mortgage volume into consideration, along with that of 1997 and 1998, more accurately corresponds to the relative size and respective capabilities of the GSEs over the 2001–2003 goals period than would a subgoal established on the basis of 1998 volume alone. Accordingly, the final rule establishes the special affordable multifamily subgoal at the respective average of one percent of each GSEs' combined (single-family and multifamily) mortgage purchases over 1997–1999, resulting in subgoals somewhat lower than those in the proposed rule, but with the advantages of (i) being based on more recent and complete information regarding the differential size and resource capabilities of each GSE, and (ii) taking into consideration new information regarding multifamily conventional origination volume. This implies the following thresholds for the two GSEs:¹

	2001–2003 (in billions)
Fannie Mae	\$2.85
Freddie Mac	\$2.11

2. *Multifamily Subgoal Alternatives*

In the proposed rule, HUD identified three alternative approaches for specifying multifamily subgoals for the GSEs based on a (i) minimum number of units; (ii) minimum percentage of multifamily acquisition volume; and (iii) minimum number of mortgages acquired. While some of these proposals did receive support from commenters, HUD does not see any compelling reason to alter the dollar-based structure of the multifamily subgoal as established in the 1995 rule, which can be updated and adapted to the current market environment by basing it upon recent acquisition volume. It is noteworthy that the Special Affordable Housing Goal, as a percentage-of-business goal based on number of units financed, combines elements of options (i) and (iii). HUD's decision to award bonus points toward the housing goals for GSE transactions involving small multifamily properties with 5–50 units will achieve some of the intended policy objectives associated with option (iii).

3. *Temporary Adjustment Factor*

In the proposed rule, HUD noted that Freddie Mac's presence in the multifamily market has lagged far behind that in single-

family, in part because Freddie Mac ceased purchasing multifamily mortgages for a period of time in the early 1990s. Freddie Mac's direct holdings of multifamily mortgages and guarantees outstanding as of the end of 1999, \$16.8 billion, are much smaller than that Fannie Mae's \$47.4 billion, not only in absolute terms, but also a percentage of all mortgage holdings and guarantees. Freddie Mac's multifamily holdings and guarantees are 2.1 percent of its total, compared with 4.3 percent for Fannie Mae.² Freddie Mac's smaller multifamily portfolio relative to that of Fannie Mae has meant fewer refinance opportunities from within its portfolio, reducing anticipated multifamily transactions volume.

Because of the importance of multifamily mortgages to GSE performance on the Special Affordable Housing Goal, Fannie Mae's larger multifamily portfolio confers a significant advantage with regard to goals performance. For example, in 1999, 56.0 percent of units backing Fannie Mae's multifamily transactions met the special affordable goal, representing 31.3 percent of units meeting the special affordable goal, when multifamily units represented only 9.5 percent of total purchase volume. In contrast, only 13.4 percent of Fannie Mae's single-family owner-occupied units met the special affordable goal.³

In recognition of the implications for housing goals performance of differences in the relative size of multifamily portfolios between the two GSEs, the Conference Report on HUD's appropriations for 2000 provides the following guidance: "* * * the stretch affordable housing efforts required of each of Freddie Mac and Fannie Mae should be equal, so that both enterprises are similarly challenged in attaining the goals. This will require the Secretary to recognize the present composition of each enterprise's overall portfolio in order to ensure regulatory parity in the application of regulatory guidelines measuring goal compliance."⁴

In order to overcome any lingering effects of Freddie Mac's decision to leave the multifamily market in the early 1990s, and to provide an incentive to continue the rapid expansion of its multifamily presence since then, the Department proposed a "Temporary Adjustment Factor" for Freddie Mac's multifamily mortgage purchases for purposes of calculating performance on the Low- and Moderate-Income Housing Goal and the Special Affordable Housing Goal. In determining Freddie Mac's performance for each of these two goals, each unit in a property with more than 50 units meeting one or both of these two housing goals would be counted as 1.2 units in calculating the numerator of the respective housing goal

percentage. The Temporary Adjustment Factor will be limited to properties with more than 50 units because of separate provisions regarding multifamily properties with 5–50 units.

In its comments, Freddie Mac supported the idea of a temporary adjustment factor; however, Freddie Mac recommended that it be set at 1.35 instead of the 1.2 level proposed by HUD. According to Freddie Mac, the difference in size and age between Freddie Mac's and Fannie Mae's multifamily portfolios makes goal achievement easier for Fannie Mae. Freddie Mac also recommended that the temporary adjustment factor apply to all three goals and opposed any phasing out of the factor over the three-year goals period.

In the period since HUD's interim housing goals took effect in January 1993, Freddie Mac's multifamily transactions volume has expanded rapidly, as noted above. Freddie Mac's 1999 multifamily transactions volume was \$7.6 billion, compared with only \$191 million in 1993. HUD's analysis indicates that a Temporary Adjustment Factor of 1.2 is sufficient to provide "regulatory parity" consistent with the direction provided by the Conference Report addressing this issue. The Department has, therefore, decided to implement the temporary adjustment factor as proposed in the proposed rule. The Adjustment Factor of 1.2 will be applied to the Low- and Moderate-Income and Special Affordable Goals. The Temporary Adjustment Factor would terminate December 31, 2003. The Temporary Adjustment Factor will not apply to Fannie Mae.

4. Seasoned Mortgage Loan Purchases "Recycling" Requirement

Comments submitted in response to HUD's proposed rule regarding "recycling requirements" pertaining to seasoned loans are discussed in the Preamble, as are the Department's determinations regarding this matter.

C. Consideration of the Factors

In considering the factors under FHEFSSA to establish the Special Affordable Housing Goal, HUD relied upon data gathered from the American Housing Survey through 1997, the Census Bureau's 1991 Residential Finance Survey, the 1990 Census of Population and Housing, Home Mortgage Disclosure Act (HMDA) data for 1992 through 1998, and annual loan-level data from the GSEs on their mortgage purchases through 1999. Appendix D discusses in detail how these data resources were used and how the size of the conventional conforming market for this goal was estimated.

The remainder of Section C discusses the factors listed above, and Section D provides the Secretary's rationale for establishing the special affordable goal.

1 and 2. Data Submitted to the Secretary in Connection With the Special Affordable Housing Goal for Previous Years, and the Performance and Efforts of the Enterprises Toward Achieving the Special Affordable Housing Goal in Previous Years

The discussions of these two factors have been combined because they overlap to a significant degree.

a. GSE Performance Relative to the 1996–99 Goals

This section discusses each GSE's performance under the Special Affordable Housing Goal over the 1993–99 period. The data presented here are "official results"—*i.e.*, they are based on HUD's in-depth analysis of the loan-level data submitted annually to the Department and the counting provisions contained in HUD's regulations in 24 CFR part 81, subpart B. As explained below, in some cases these "official results" differ from goal performance reported to the Department by the GSEs in their Annual Housing Activities Reports.

HUD's goals specified that in 1996 at least 12 percent of the number of units eligible to count toward the Special Affordable goal should qualify as Special Affordable, and at least 14 percent annually beginning in 1997. The actual performance in 1996 through 1999, based on HUD's analysis of loan-level data submitted by the GSEs, is shown in Table C.1 and Figure C.1. Fannie Mae surpassed the goal by 3.4 percentage points and 3.0 percentage points, respectively, in 1996 and 1997, while Freddie Mac surpassed the goal by 2.0 and 1.2 percentage points. In 1998, Fannie Mae exceeded the goal by 0.3 percentage point, while Freddie Mac exceeded the goal by 1.9 percentage points.

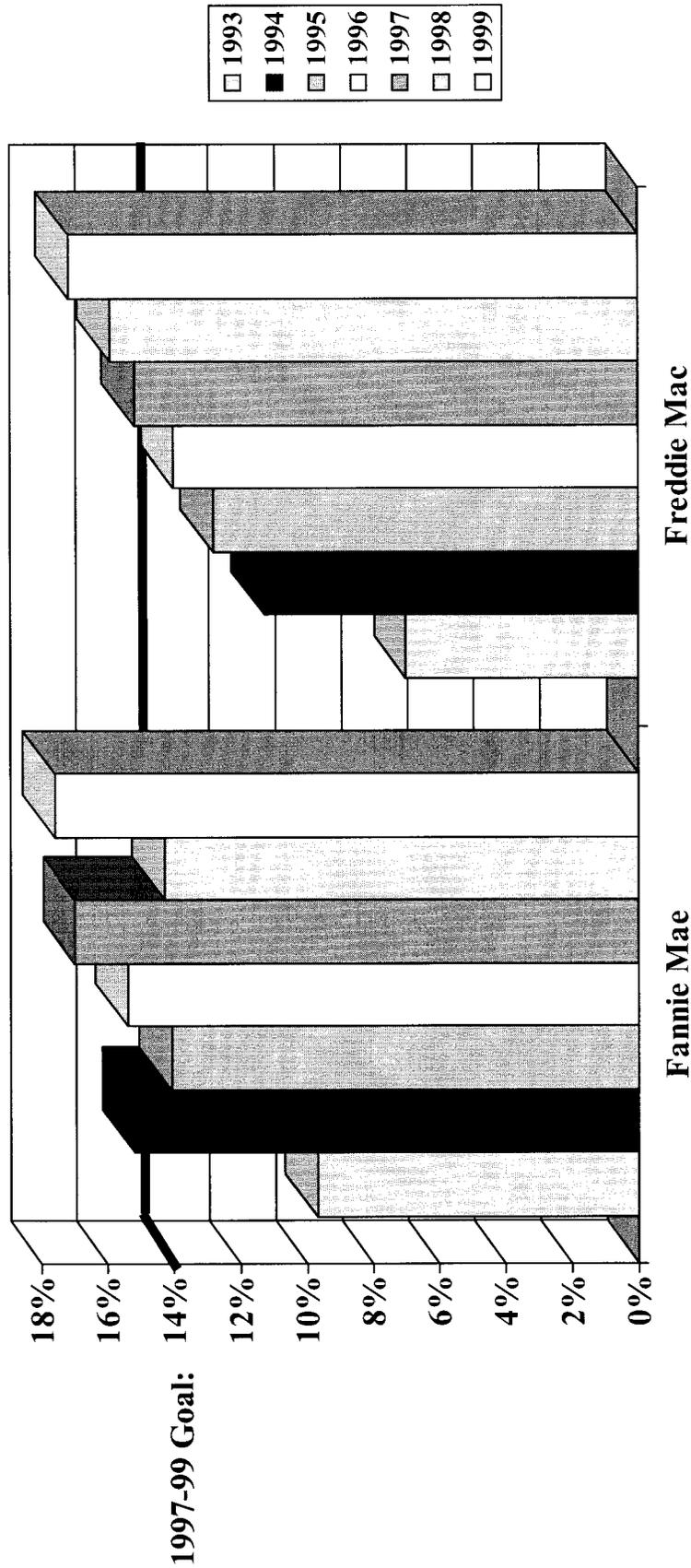
Both GSEs stepped up their performance and attained their highest performance to date in 1999, with Fannie Mae surpassing the 14 percent goal by 3.6 percentage points and Freddie Mac surpassing the goal by 3.2 percentage points (Table C.1). After lagging Freddie Mac on special affordable performance in 1998, Fannie Mae surpassed Freddie Mac last year.⁵ A major reason for Fannie Mae's record special affordable goal performance in 1999 was the 15 percent increase in the dollar volume of its special affordable multifamily purchases; Freddie Mac, on the other hand, experienced a 16 percent decline in such purchases between 1998 and 1999.⁶

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Table C.1
GSEs' Special Affordable Purchases, 1993-99

	1993	1994	1995	1996	1997	1998	1999
Fannie Mae:							
Units Eligible to Count Toward Goal	2,909,941	1,832,257	1,417,542	1,852,233	1,748,044	3,486,040	2,935,075
Special Affordable Units	282,170	279,093	199,715	285,642	296,366	499,948	517,169
Percent Special Affordable	9.7%	15.2%	14.1%	15.4%	17.0%	14.3%	17.6%
Special Affordable Multifamily Purchases (\$billions)	\$1.64	\$1.74	\$1.34	\$2.37	\$3.19	\$3.53	\$4.06
Freddie Mac:							
Units Eligible to Count Toward Goal	2,170,036	1,290,990	959,137	1,299,589	1,175,271	2,658,174	2,228,906
Special Affordable Units	152,628	146,224	122,954	181,505	178,736	422,900	383,329
Percent Special Affordable	7.0%	11.3%	12.8%	14.0%	15.2%	15.9%	17.2%
Special Affordable Multifamily Purchases (\$billions)	\$0.14	\$0.46	\$0.69	\$1.06	\$1.21	\$2.69	\$2.26

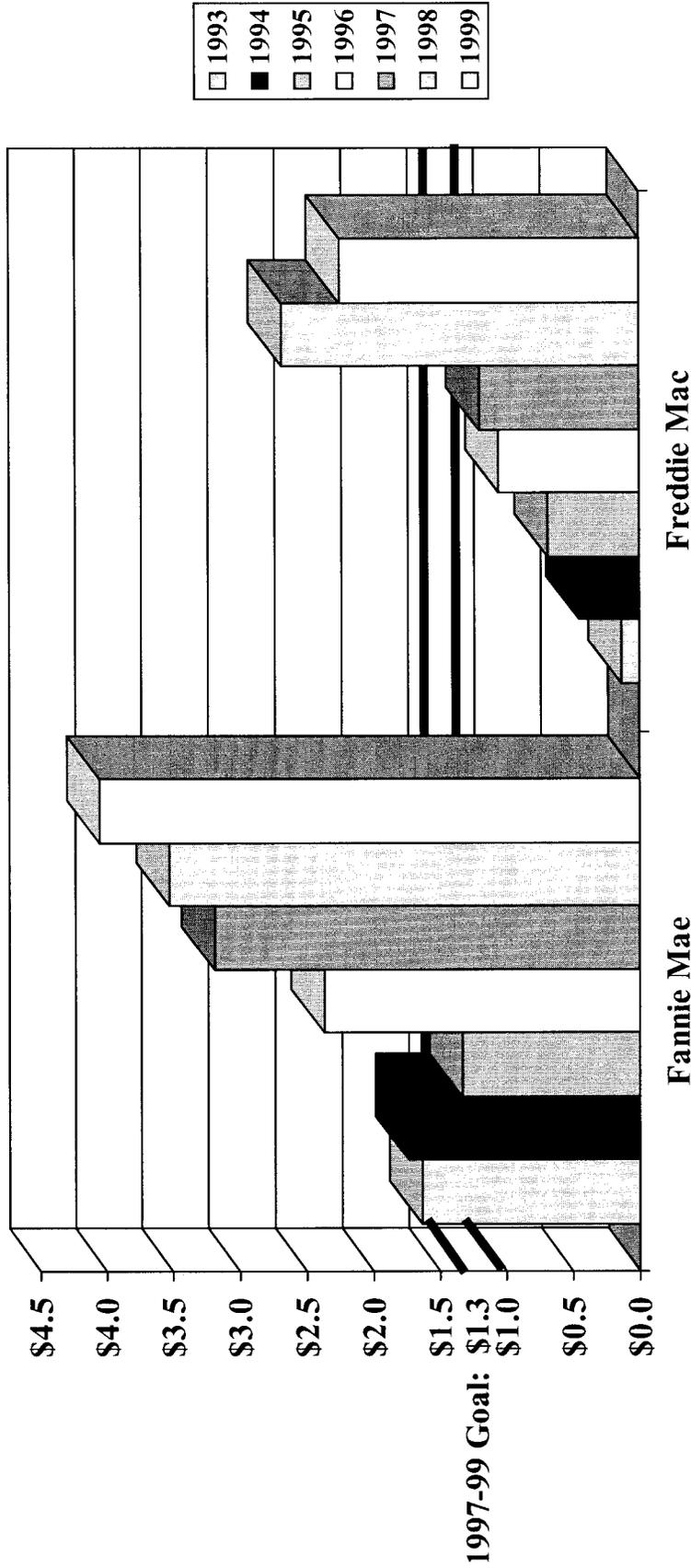
Figure C.1
Special Affordable Mortgage Purchases



Special Affordable Goal was 14% of units financed for 1997-99 (12% for 1996).

Source: HUD analysis of GSEs' loan-level data.

Figure C.2
Multifamily Special Affordable Mortgage Purchases
 (Billions of Dollars Per Year)



Multifamily Special Affordable Goals for 1996-99 were \$1.29 billion per year for Fannie Mae and \$988 million per year for Freddie Mac.

Source: HUD analysis of GSEs' loan-level data.

Table C.2

**Fannie Mae's Special Affordable Purchases
By Unit Affordability and Area Income, 1993-1999**

Year of purchase and Type of unit	Very-Low Income Units in Low-Income Areas	Very-Low Income Units Outside Low-Income Areas	Other Low-Income Units in Low-Income Areas	Other Units Qualifying For Goal*	Total Units Qualifying For Goal	Percent
1993						
Single-family owner	21,731	108,354	28,351		158,436	56.1%
Single-family rental	11,474	21,022	12,082		44,578	15.8%
Multifamily	19,831	43,754	10,480	5,092	79,157	28.1%
Total	53,036	173,130	50,913	5,092	282,171	100.0%
Percent	18.8%	61.4%	18.0%	1.8%	100.0%	
1994						
Single-family owner	22,599	88,407	23,310		134,316	48.1%
Single-family rental	14,392	21,637	11,545		47,574	17.0%
Multifamily	25,712	51,173	13,572	6,746	97,203	34.8%
Total	62,703	161,217	48,427	6,746	279,093	100.0%
Percent	22.5%	57.8%	17.4%	2.4%	100.0%	
1995						
Single-family owner	20,292	68,062	18,139		106,493	53.3%
Single-family rental	8,251	11,210	5,887		25,348	12.7%
Multifamily	16,334	33,988	12,801	4,750	67,873	34.0%
Total	44,877	113,260	36,827	4,750	199,714	100.0%
Percent	22.5%	56.7%	18.4%	2.4%	100.0%	
1996						
Single-family owner	25,103	93,029	23,328		141,460	49.5%
Single-family rental	11,242	18,207	6,938		36,387	12.7%
Multifamily	23,703	59,556	15,399	9,136	107,794	37.7%
Total	60,048	170,792	45,665	9,136	285,641	100.0%
Percent	21.0%	59.8%	16.0%	3.2%	100.0%	
1997						
Single-family owner	23,909	91,400	20,825		136,134	45.9%
Single-family rental	9,169	15,290	5,399		29,858	10.1%
Multifamily	27,522	80,069	13,294	9,488	130,373	44.0%
Total	60,600	186,759	39,518	9,488	296,365	100.0%
Percent	20.4%	63.0%	13.3%	3.2%	100.0%	
1998						
Single-family owner	43,631	212,519	41,108		297,257	59.5%
Single-family rental	18,158	34,396	11,314		63,868	12.8%
Multifamily	34,481	74,417	19,799	10,126	138,822	27.8%
Total	96,270	321,332	72,221	10,126	499,947	100.0%
Percent	19.3%	64.3%	14.4%	2.0%	100.0%	
1999						
Single-family owner	41,943	205,048	36,366		283,357	54.8%
Single-family rental	21,161	38,663	12,063		71,887	13.9%
Multifamily	38,292	95,623	15,586	12,423	161,924	31.3%
Total	101,396	339,334	64,015	12,423	517,168	100.0%
Percent	19.6%	65.6%	12.4%	2.4%	100.0%	

* Low-income rental units in multifamily properties where at least 20 percent of the units are affordable to families whose incomes are 50 percent of area median income or less or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less, which do not otherwise qualify under the goal.

Table C.3

**Freddie Mac's Special Affordable Purchases
By Unit Affordability and Area Income, 1993-1999**

Year of purchase and Type of unit	Very-Low Income Units in Low- Income Areas	Very-Low Income Units Outside Low- Income Areas	Other Low-Income Units in Low- Income Areas	Other Units Qualifying For Goal*	Total Units Qualifying For Goal	Percent
1993						
Single-family owner	14,689	79,181	20,935		114,805	75.2%
Single-family rental	7,426	13,612	8,365		29,403	19.3%
Multifamily	3,432	4,237	577	181	8,427	5.5%
Total	25,547	97,030	29,877	181	152,635	100.0%
Percent	16.7%	63.6%	19.6%	0.1%	100.0%	
1994						
Single-family owner	13,012	61,986	15,509		90,507	55.9%
Single-family rental	16,851	21,047	6,071		43,969	27.2%
Multifamily	12,550	11,546	2,124	1,216	27,436	16.9%
Total	42,413	94,579	23,704	1,216	161,912	100.0%
Percent	26.2%	58.4%	14.6%	0.8%	100.0%	
1995						
Single-family owner	10,801	45,782	11,138		67,721	55.1%
Single-family rental	6,018	10,705	4,697		21,420	17.4%
Multifamily	9,818	15,352	5,199	3,444	33,813	27.5%
Total	26,637	71,839	21,034	3,444	122,954	100.0%
Percent	21.7%	58.4%	17.1%	2.8%	100.0%	
1996						
Single-family owner	15,330	70,731	16,018		102,080	56.2%
Single-family rental	7,539	14,339	4,178		26,056	14.4%
Multifamily	12,634	28,301	8,760	3,675	53,370	29.4%
Total	35,503	113,371	28,956	3,675	181,506	100.0%
Percent	19.6%	62.5%	16.0%	2.0%	100.0%	
1997						
Single-family owner	15,742	66,656	15,449		97,847	54.7%
Single-family rental	7,469	11,612	5,552		24,633	13.8%
Multifamily	16,131	28,789	8,133	3,203	56,256	31.5%
Total	39,342	107,057	29,134	3,203	178,736	100.0%
Percent	22.0%	59.9%	16.3%	1.8%	100.0%	
1998						
Single-family owner	40,690	176,846	33,869		251,404	59.4%
Single-family rental	14,665	28,691	7,364		50,720	12.0%
Multifamily	30,736	63,272	21,609	5,159	120,776	28.6%
Total	86,091	268,809	62,842	5,159	422,900	100.0%
Percent	20.4%	63.6%	14.9%	1.2%	100.0%	
1999						
Single-family owner	37,675	168,684	31,452		237,810	62.0%
Single-family rental	18,054	33,305	11,179		62,538	16.3%
Multifamily	20,969	46,765	10,001	5,247	82,982	21.6%
Total	76,698	248,754	52,632	5,247	383,330	100.0%
Percent	20.0%	64.9%	13.7%	1.4%	100.0%	

* Low-income rental units in multifamily properties where at least 20 percent of the units are affordable to families whose incomes are 50 percent of area median income or less or where at least 40 percent of the units are affordable to families whose incomes are 60 percent of area median income or less, which do not otherwise qualify under the goal.

Table C.1 also includes, for comparison purposes, comparable figures for 1993 through 1995, calculated according to the counting conventions of the 1995 rule that became applicable in 1996. Each GSE's performance in 1996 through 1999 exceeded its performance in each of the three preceding years.

The Fannie Mae figures presented above are smaller than the corresponding figures presented by Fannie Mae in its Annual Housing Activity Reports to HUD by approximately 2 percentage points in both 1996 and 1997, 1.3 percentage points in 1998, and 1.1 percentage points in 1999. The difference largely reflects HUD-Fannie Mae differences in application of counting rules relating to counting of seasoned loans for purposes of this goal. In particular, HUD's tabulations reflect inclusion of seasoned loan purchases in the denominator in calculating performance under the Special Affordable goal, as discussed in Preamble section II(B)(6)(c) on the Seasoned Mortgage Loan Purchases "Recycling" Requirement. Freddie Mac's Annual Housing Activity Report figures for this goal differ from the figures presented above by 0.1 percentage point, reflecting minor differences in application of counting rules.

Since 1996 each GSE has been subject to an annual subgoal for multifamily Special Affordable mortgage purchases, as discussed above, established as 0.8 percent of the dollar volume of single-family and multifamily mortgages purchased by the respective GSE in 1994. Fannie Mae's subgoal was \$1.29 billion and Freddie Mac's subgoal was \$988 million for each year. Fannie Mae surpassed the subgoal by \$1.08 billion, \$1.90 billion, \$2.24 billion, and \$2.77 billion in 1996, 1997, 1998, and 1999, respectively, while Freddie Mac exceeded the subgoal by \$18 million, \$220 million, \$1.70 billion, and \$1.27 billion. Table C.1 includes figures on subgoal performance, and they are depicted graphically in Figure C.2.

b. Characteristics of Special Affordable Purchases

The following analysis presents information on the composition of the GSEs' Special Affordable purchases according to area income, unit affordability, tenure of unit and property type (single- or multifamily).

Increased reliance on multifamily housing to meet goal. Tables C.2 and C.3 show that both GSEs have increasingly relied on multifamily housing units to meet the special affordable goal since 1993. Fannie Mae's multifamily purchases represented 31.3 percent of all purchases qualifying for the goal in 1999, compared with 28.1 percent in 1993. Freddie Mac's multifamily purchases represented 21.6 percent of all purchases qualifying for the goal in 1999, compared to 5.5 percent in 1993. The trends for both GSEs were steadily upward throughout the 1993-97 period, with some decrease in multifamily share of the special affordable purchases since 1997.

The other two housing categories—single-family owner and single-family rental—both

exhibited downward trends for both GSEs. In 1999 Fannie Mae's single-family owner units qualifying for the goal represented 54.8 percent of all qualifying units, and Fannie Mae's single-family rental units were 13.9 percent of all qualifying units. In 1999 Freddie Mac's single-family owner units qualifying for the goal represented 62.0 percent of all qualifying units, and Freddie Mac's single-family rental units were 16.3 percent of all qualifying units.

Reliance on household income relative to area income characteristics to meet goal. Tables C.2 and C.3 also show the allocation of units qualifying for the goal as related to the family income and area median income criteria in the goal definition. Very-low-income families (shown in the two leftmost columns in the tables) accounted for 85.2 percent of Fannie Mae's units qualifying under the goal in 1999, compared to 80.2 percent in 1993. For Freddie Mac, very-low-income families accounted for 84.9 percent of units qualifying under the goal in 1999 and 80.3 percent in 1993. In contrast, mortgage purchases from low-income areas (shown in the first and third columns in the tables) accounted for 32.0 percent of Fannie Mae's units qualifying under the goal in 1999, compared to 36.8 percent in 1993. The corresponding percentages for Freddie Mac were 33.7 percent in 1999 and 36.3 percent in 1993. Thus given the definition of special affordable housing in terms of household and area income characteristics, both GSEs have consistently relied substantially more on low-income characteristics of households than low-income characteristics of census tracts to meet this goal.

c. GSEs' Performance Relative to Market

Section E in Appendix A used HMDA data and GSE loan-level data for home purchase mortgages on single-family owner-occupied properties in metropolitan areas to compare the GSEs' performance in special affordable lending to the performance of depositories and other lenders in the conventional conforming market. There were three main findings. *First*, both GSEs lag depositories and the overall market in providing mortgage funds for very low-income and other special affordable borrowers. *Second*, the performance of Freddie Mac through 1998 was particularly weak compared to Fannie Mae, the depositories, and the overall market. For example, between 1996 and 1998, special affordable borrowers accounted for 9.8 percent of the home loans purchased by Freddie Mac, 11.9 percent of Fannie Mae's purchases, 16.7 percent of home loans originated and retained by depositories, and 15.3 percent of all home loans originated in the conventional conforming market (see Table A.3 in Appendix A). While Freddie Mac improved its performance, it had not closed the gap between its performance and that of the overall market. In 1992, special affordable loans accounted for 6.5 percent of Freddie Mac's purchases and 10.4 percent of market originations, for a "Freddie-Mac-to-market" ratio of 0.63. By 1998, that ratio had increased only to 0.73 (11.3 percent versus

15.5 percent). *Third*, in 1999, Freddie Mac matched Fannie Mae in purchasing special affordable home loans. Special affordable loans accounted for 12.5 percent of Freddie Mac's 1999 home purchase mortgages, and for 12.3 percent of Fannie Mae's purchases. With respect to the GSEs' total (combined home purchase and refinance) loans, Freddie Mac's performance in 1999 surpassed Fannie Mae's performance. The special affordable category accounted for 13.3 percent of Freddie Mac's 1999 purchases, compared with 12.3 percent of Fannie Mae's purchases.

Section G in Appendix A discusses the role of the GSEs both in the overall special affordable market and in the different segments (single-family owner, single-family rental, and multifamily rental) of the special affordable market. The GSEs' special affordable purchases have accounted for 25 percent of all special affordable owner and rental units that were financed in the conventional conforming market during 1997. The GSEs' 25-percent share of the special affordable market was three-fifths of their 40-percent share of the overall market. Even in the owner market, where the GSEs account for 50 percent of the market, their share of the special affordable market was only 36 percent. Similar patterns prevailed in 1998. This analysis suggests that the GSEs are not leading the single-family market in purchasing loans that qualify for the Special Affordable Goal. There is room for the GSEs to improve their performance in purchasing affordable loans at the lower-income end of the market.

3. National Housing Needs of Low-Income Families in Low-Income Areas and Very-Low-Income Families

This discussion concentrates on very low-income families with the greatest needs. It complements Section C of Appendix A, which presents detailed analyses of housing problems and demographic trends for lower-income families which are relevant to the issue addressed in this part of Appendix C.

Data from the American Housing Survey demonstrate that housing problems and needs for affordable housing continue to be more pressing in the lowest-income categories than among moderate-income families, as established in HUD's analysis for the 1995 rule. Table C.4 displays figures on several types of housing problems—high housing costs relative to income, physical housing defects, and crowding—for both owners and renters. Figures are presented for households experiencing multiple (two or more) of these problems as well as households experiencing a severe degree of either cost burden or physical problems. Housing problems in 1995 were much more frequent for the lowest-income groups.⁷ Incidence of problems is shown for households in the income range covered by the special affordable goal, as well as for higher income households.

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Table C.4

**Incidence of Housing Problems by
Household Income, 1995**

	Household Income as Percent of Area Median Income			
	0-60%	61-80%	81-100%	> 100%
Renter Households (Thousands)				
Total	17,428	4,579	3,896	8,246
Rent Burden > 50% of Income	6,056	100	25	5
31-50%	5,385	1,299	482	219
Severely Inadequate Housing	587	60	68	134
Moderately Inadequate	1,415	290	197	376
Crowded	1,282	159	99	133
Multiple Problems*	2,022	75	42	34
Priority Problems**	5,492	160	94	139
As Percent of Total				
Rent Burden > 50% of Income	34.7%	2.2%	0.6%	0.1%
31-50%	30.9%	28.4%	12.4%	2.7%
Severely Inadequate Housing	3.4%	1.3%	1.7%	1.6%
Moderately Inadequate	8.1%	6.3%	5.1%	4.6%
Crowded	7.4%	3.5%	2.5%	1.6%
Multiple Problems*	11.6%	1.6%	1.1%	0.4%
Priority Problems**	31.5%	3.5%	2.4%	1.7%
Owner Households (Thousands)				
Total	19,366	7,758	6,492	29,927
Cost Burden > 50% of Income	4,177	437	147	152
31-50%	4,027	1,473	913	1,639
Severely Inadequate Housing	536	123	101	412
Moderately Inadequate	995	266	205	604
Crowded	299	157	95	329
Multiple Problems*	753	130	79	106
Priority Problems**	4,602	550	247	559
As Percent of Total				
Cost Burden > 50% of Income	21.6%	5.6%	2.3%	0.5%
31-50%	20.8%	19.0%	14.1%	5.5%
Severely Inadequate Housing	2.8%	1.6%	1.6%	1.4%
Moderately Inadequate	5.1%	3.4%	3.2%	2.0%
Crowded	1.5%	2.0%	1.5%	1.1%
Multiple Problems*	3.9%	1.7%	1.2%	0.4%
Priority Problems**	23.8%	7.1%	3.8%	1.9%

* Two or three of the following: housing costs >30%, severe or moderate physical problems, and overcrowding.

** Housing costs >50% of income or severely inadequate housing among unassisted households.

Note: Incomes of renter households are estimated based on rents, adjusted for number of bedrooms.

This analysis shows that priority problems of severe cost burden or severely inadequate housing are noticeably concentrated among renters and owners with incomes below 60 percent of area median income (31.5 percent of renter households and 23.8 percent of owner households). In contrast, 3.5 percent of renter households and 7.1 percent of owner households with incomes above 60 percent of area median income, up to 80 percent of area median income, had priority problems. For more than two-thirds of the very low-income renter families with worst case problems, the only problem was affordability—they did not have problems with housing adequacy or crowding.

4. The Ability of the Enterprises To Lead the Industry in Making Mortgage Credit Available for Low-Income and Very Low-Income Families

The discussion of the ability of Fannie Mae and Freddie Mac to lead the industry in Section G.5 of Appendix A is relevant to this factor—the GSEs' roles in the owner and rental markets, their role in establishing widely-applied underwriting standards, their role in the development of new technology for mortgage origination, their strong staff resources, and their financial strength. Additional analyses of the potential ability of the enterprises to lead the industry in the low- and very low-income market appears below—in Section D.2 generally, and in Section D.3 with respect to multifamily housing.

5. The Need To Maintain the Sound Financial Condition of the GSEs

HUD has undertaken a separate, detailed economic analysis of this final rule, which includes consideration of (a) the financial returns that the GSEs earn on low- and

moderate-income loans and (b) the financial safety and soundness implications of the housing goals. Based on this economic analysis and discussions with the Office of Federal Housing Enterprise Oversight, HUD concludes that the housing goals in this final rule raise minimal, if any, safety and soundness concerns.

D. Determination of the Goal

Several considerations, many of which are reviewed in Appendixes A and B and in previous sections of this Appendix, led to the determination of the Special Affordable Housing Goal.

1. Severe Housing Problems

The data presented in Section C.3 demonstrate that housing problems and needs for affordable housing are much more pressing in the lowest-income categories than among moderate-income families. The high incidence of severe problems among the lowest-income renters reflects severe shortages of units affordable to those renters. At incomes below 60 percent of area median, 34.7 percent of renters and 21.6 percent of owners paid more than 50 percent of their income for housing. In this same income range, 65.6 percent of renters and 42.4 percent of owners paid more than 30 percent of their income for housing. In addition, 31.5 percent of renters and 23.8 percent of owners exhibited "priority problems", meaning housing costs over 50 percent of income or severely inadequate housing.

2. GSE Performance and the Market

a. GSEs' Single-Family Performance

The Special Affordable Housing Goal is designed, in part, to ensure that the GSEs maintain a consistent focus on serving the very low-income portion of the housing

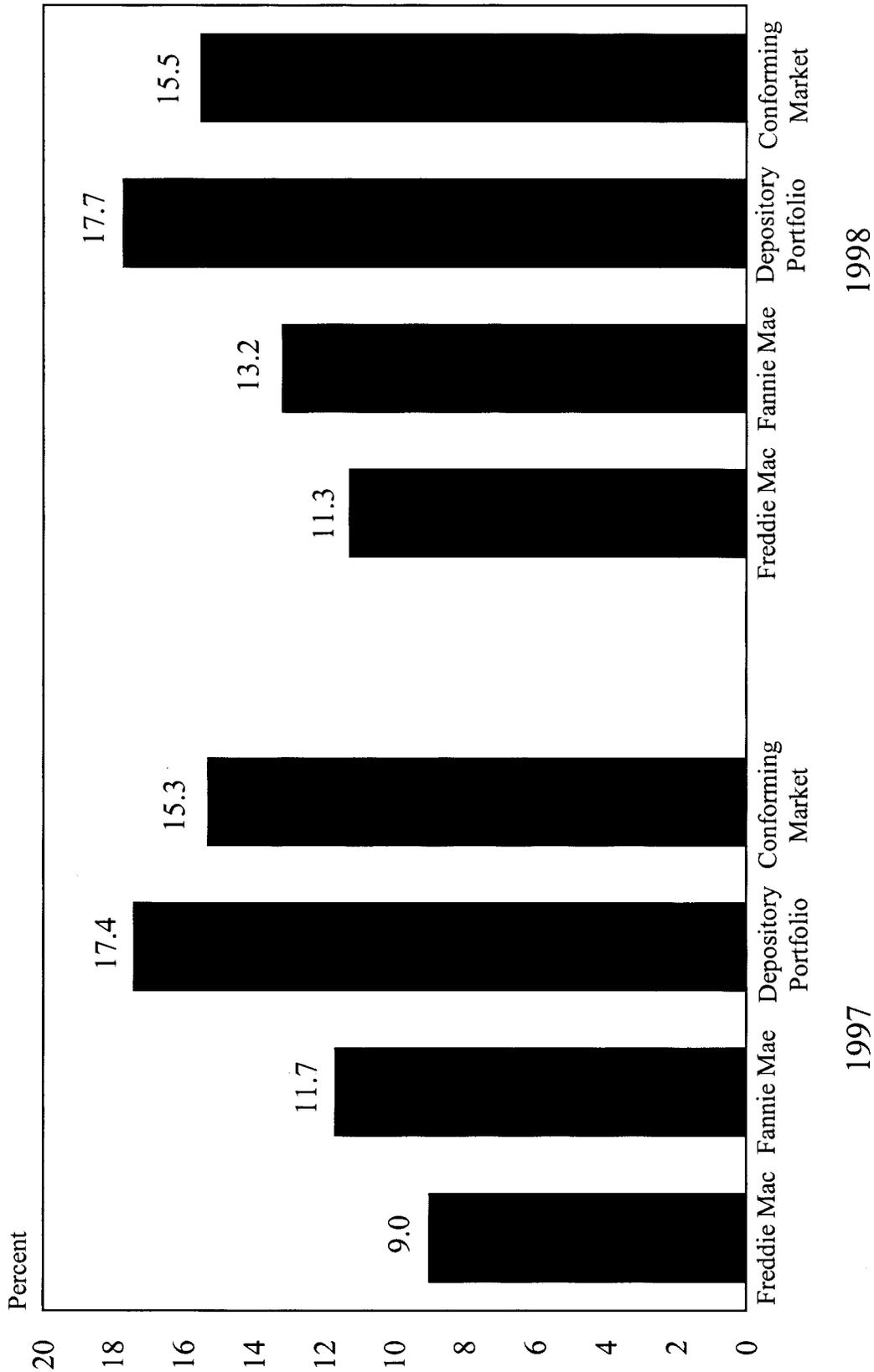
market where housing needs are greatest. The bulk of the GSEs' low- and moderate-income mortgage purchases are for the higher-income portion of this category. The lowest-income borrowers account for approximately one-fourth of each GSE's below-median income purchases of owner-occupied mortgages.

b. Single-Family Market Comparisons in Metropolitan Areas

Section C compared the GSEs' performance in special affordable lending to the performance of depositories and other lenders in the conventional conforming market for single-family home loans. The analysis showed that both GSEs lag depositories and the overall market in providing mortgage funds for very low-income and other special affordable borrowers. Figure C.3 illustrates these findings. In 1998, special affordable borrowers accounted for 11.3 percent of the home loans purchased by Freddie Mac, 13.2 percent of Fannie Mae's purchases, 17.7 percent of home loans originated and retained by depositories, and 15.5 percent of all home loans originated in the conventional conforming market. Section C also noted that Freddie Mac improved its performance, but it had not made much progress in closing the gap between its performance and that of the overall market. In 1999, however, Freddie Mac's funding of special affordable loans improved to the point that it matched Fannie Mae's performance with respect to purchases of home loans (12.5 percent and 12.3 percent, respectively) and it surpassed Fannie Mae's performance with respect to purchases of total combined home purchases and refinance loans (13.3 percent and 12.3 percent, respectively).

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Figure C.3
The Share Of GSE And Conventional Conforming
Mortgages for Special Affordable Borrowers,
1997 and 1998



Source: Conforming market and depository data are from 1997 and 1998 HMDA; GSE data are from loan-level data reported to HUD. Data are for single-family home purchase loans in metropolitan areas. See Table A.4a for further explanation.

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c. Overall Market Comparisons

Section C compared the GSEs' role in the overall market with their role in the special

affordable market. The GSEs' purchases have provided financing for 2,948,112 dwelling units, which represented 40 percent of the 7,306,950 single-family and multifamily

units that were financed in the conventional conforming market during 1997. However, in the special affordable part of the market, the 519,371 units that were financed by GSE

purchases represented only 25 percent of the 2,105,508 dwelling units that were financed in the market. A similar pattern prevailed in 1998. Thus, there appears to ample room for the GSEs to improve their performance in the special affordable market.

3. *Reasons for Increasing the Special Affordable Housing Goal*

The reasons the Secretary is increasing the Special Affordable Goal are essentially the same as those given in Section H.4 of Appendix A for the Low- and Moderate-Income Goal. Although that discussion will not be repeated here, the main considerations are the following: Freddie Mac's re-entry into the multifamily market; the underlying strength of the primary mortgage market for lower-income families; the need for the GSEs to improve their purchases of mortgages for lower-income families and their communities; the existence of several low-income market segments that would benefit from more active efforts by the GSEs; and the substantial profits and financial capacity of Fannie Mae and Freddie Mac. The Department's analysis shows that the GSEs are not leading the market in purchasing loans that qualify for the Special Affordable Goal. There are also plenty of opportunities for the GSEs to improve their performance in purchasing special affordable loans. The GSEs' accounted for only 25 percent of the special affordable market in 1997—a figure substantially below their 40-percent share of the overall market. Similarly, the GSEs accounted for only 33 percent of the special affordable market in 1998, compared with their 55-percent share of the overall market during that heavy refinance year.

4. *Multifamily Purchases—Further Analysis*

As noted previously, the multifamily sector is especially important in the establishment of the special affordable housing goals for Fannie Mae and Freddie Mac because of the relatively high percentage of multifamily units meeting the special affordable goal as compared with single-family. For example, in 1999, 56.0 percent of units backing Fannie Mae's multifamily transactions met the special affordable goal, representing 31.3 percent of units meeting the special affordable goal, when multifamily units represented only 9.5 percent of total purchase volume.⁸

Significant new developments in the multifamily mortgage market have occurred since the publication of the December 1995 rule, most notably the increased rate of debt securitization via Commercial Mortgage Backed Securities (CMBS) and a higher level of equity securitization by Real Estate Investment Trusts (REITs). Fannie Mae has played a role in establishing underwriting standards that have been widely emulated in the growth of the CMBS market. Freddie Mac has contributed to the growth and stability of the CMBS sector by acting as an investor.

Increased securitization of debt and equity interests in multifamily property present the GSEs with new challenges as well as new opportunities. The GSEs are currently experiencing a higher degree of secondary market competition than they did in 1995. At the same time, recent volatility in the CMBS

market underlines the need for an ongoing GSE presence in the multifamily secondary market. The potential for an increased GSE presence is enhanced by virtue of the fact that an increasing proportion of multifamily mortgages are originated to secondary market standards.

Despite the expanded presence of the GSEs in the multifamily mortgage market and the rapid growth in multifamily securitization by means of CMBS, increased secondary market liquidity does not appear to have benefited all segments of the market equally. Small properties with 5–50 units appear to have been adversely affected by excessive borrowing costs as described in Appendix A. Another market segment that appears experiencing difficulty in obtaining mortgage credit consists of multifamily properties with significant rehabilitation needs. Properties that are more than 10 years old are typically classified as "C" or "D" properties, and are considered less attractive than newer properties by many lenders and investors.

Context. As discussed above, in the 1995 Final Rule, the multifamily subgoal for the 1996–1999 period was set at 0.8 percent of the dollar value of each GSEs' respective 1994 origination volume, or \$998 million for Freddie Mac and \$1.29 billion for Fannie Mae. Freddie Mac exceeded the goal by a narrow margin in 1996 and more comfortably in 1997–1999. Fannie Mae has exceeded the goal by a wide margin in all four years.

The experience of the 1996–1999 period suggests the following preliminary findings regarding the multifamily special affordable subgoal:

- The goal has contributed toward a significantly increased presence by Freddie Mac in the multifamily market.
- The current goal is out of date, as it is based on market conditions in 1993–94. The goal has remained at a fixed level, despite significant growth in the multifamily market and in the GSEs' administrative capabilities with regard to multifamily.

As mentioned previously, HUD's final rule establishes the multifamily subgoal at the respective average of one percent of each GSEs' combined mortgage purchases over 1997–1999. This implies the following thresholds for the two GSEs:

	2001–2003 (in billions)
Fannie Mae	\$2.85
Freddie Mac	2.11

A multifamily subgoal for 2001–2003 set at one percent of each GSEs' combined mortgage purchases over 1997–1999 will sustain and likely increase the efforts of the GSEs in the multifamily mortgage market, with particular emphasis upon the special affordable segment.

5. *Conclusion*

HUD has determined that the Special Affordable Housing Goal in this final rule addresses national housing needs within the income categories specified for this goal, while accounting for the GSEs' past performance in purchasing mortgages meeting the needs of very-low-income

families and low-income families in low-income areas. HUD has also considered the size of the conventional mortgage market serving very-low-income families and low-income families in low-income areas. Moreover, HUD has considered the GSEs' ability to lead the industry as well as their financial condition. HUD has determined that a Special Affordable Housing Goal of 20 percent in 2001–2003 is both necessary and achievable. HUD has also determined that a multifamily special affordable subgoal for 2001–2003 set at one percent of the average of each GSEs' respective dollar volume of combined (single-family and multifamily) 1997–1999 mortgage purchases is in both necessary and achievable.

Endnotes to Appendix C

¹ HUD has determined that the total dollar volume of the GSEs' combined (single and multifamily) mortgage purchases by Fannie Mae was \$165.3 billion in 1997, \$367.6 billion 1998, and \$323.0 in 1999. Freddie Mac's corresponding acquisition volume was \$117.7 billion in 1997, \$273.2 billion in 1998, and \$240.7 billion in 1999.

² *Federal Reserve Bulletin*, June 2000, A 35.

³ Source: HUD analysis of GSE loan-level data.

⁴ U.S. House of Representatives, *Congressional Record*. (October 13, 1999), p. H10014.

⁵ It should be noted that in all years, Fannie Mae's performance on the special affordable goal under HUD scoring lags performance as reported by Fannie Mae, because of differences pertaining to the "recycling" of proceeds from the sales of portfolios of special affordable loans.

⁶ Total dollar volume of multifamily purchases moved in the opposite direction from special affordable multifamily volume last year—total volume fell by 25 percent for Fannie Mae (from \$12.50 billion in 1998 to \$9.39 billion in 1999), but rose by 16 percent for Freddie Mac (from \$6.58 billion in 1998 to \$7.62 billion in 1999); special affordable multifamily volume rose by 15 percent for Fannie Mae (from \$3.53 billion in 1998 to \$4.06 billion in 1999), but fell by 16 percent for Freddie Mac (from \$2.69 billion in 1998 to \$2.26 billion in 1999).

⁷ Tabulations of the 1995 American Housing Survey by HUD's Office of Policy Development and Research. The results in the table categorize renters reporting housing assistance as having no housing problems.

⁸ Source: HUD analysis of GSE loan-level data.

Appendix D—Estimating the Size of the Conventional Conforming Market for Each Housing Goal

A. Introduction

1. *Overview of Appendix D*

In establishing the three housing goals, the Secretary is required to assess, among a number of factors, the size of the conventional market for each goal. This appendix explains HUD's methodology for estimating the size of the conventional market for each of the three housing goals. Following this overview, the remainder of Section A summarizes the main components

of HUD's market-share model and identifies those parameters that have a large effect on the relative market shares. With this material as background, Section B provides an overview of the GSEs' main comments on, and criticisms of, HUD's market share methodology, as well HUD's response to those comments and criticisms. More detailed analyses of selected comments by the GSEs are provided throughout this appendix. Sections C and D discuss two particularly important market parameters, the size of the multifamily market and the share of the single-family mortgage market accounted for by single-family rental properties. Section E provides a more systematic presentation of the model's equations and main assumptions. Sections F, G, and H report HUD's estimates for the Low- and Moderate-Income Goal, the Geographically-Targeted (Underserved Areas) Goal, and the Special Affordable Housing Goal, respectively.¹

In developing this rule, HUD has carefully reviewed existing information on mortgage activity in order to understand the weakness of various data sources and has conducted sensitivity analyses to show the effects of alternative parameter assumptions. Data on the multifamily mortgage market from HUD's Property Owners and Managers' Survey (POMS), not available at the time 1995 GSE final rule was published, is utilized here. HUD is well aware of uncertainties with some of the data and much of this appendix is spent discussing the effects of alternative assumptions about data parameters and presenting the results of an extensive set of sensitivity analyses.

In a critique of HUD's market share model, Blackley and Follain (1995, 1996) concluded that conceptually HUD had chosen a reasonable approach to determining the size of the mortgage market that qualifies for each of the three housing goals.² Blackley and Follain correctly note that the challenge lies in getting accurate estimates of the model's parameters. As noted later, both GSEs reached the same conclusion in their comments on the proposed rule.

This appendix reviews in some detail HUD's efforts to combine information from several mortgage market data bases to obtain reasonable values for the model's parameters. Numerous sensitivity analyses are performed

in order to arrive at a set of reasonable market estimates.

The single-family market analysis in this appendix is based heavily on HMDA data for the years 1992 to 1998. The HMDA data for 1999 were not released until August 2000, which did not give HUD enough time to incorporate that data into the analyses reported in the Appendices. It should also be noted that the discussion sometimes focuses on the year 1997, as 1997 represents a more typical mortgage market than the heavy refinancing year of 1998.

2. Overview of HUD's Market Share Methodology³

a. Definition of Market Share

The size of the market for each housing goal is one of the factors that the Secretary is required to consider when setting the level of each housing goal.⁴ Using the Low- and Moderate-Income Housing Goal as an example, the market share in a particular year is defined as follows:

Low- and Moderate-Income Share of Market: The number of dwelling units financed by the primary mortgage market in a particular calendar year that are occupied by (or affordable to, in the case of rental units) families with incomes equal to or less than the area median income *divided* by the total number of dwelling units financed in the conforming conventional primary mortgage market.

There are three important aspects to this definition. First, the market is defined in terms of "dwelling units" rather than, for example, "value of mortgages" or "number of properties." Second, the units are "financed" units rather than the entire stock of all mortgaged dwelling units; that is, the market-share concept is based on the mortgage flow in a particular year, which will be smaller than total outstanding mortgage debt. Third, the low- and moderate-income market is expressed relative to the overall conforming conventional market, which is the relevant market for the GSEs.⁵ The low- and moderate-income market is defined as a percentage of the conforming market; this percentage approach maintains consistency with the method for computing each GSE's performance under the Low- and Moderate-Income Goal (that is, the number of low- and

moderate-income dwelling units financed by GSE mortgage purchases relative to the overall number of dwelling units financed by GSE mortgage purchases).

b. Three-Step Procedure

Ideally, computing the low- and moderate-income market share would be straightforward, consisting of three steps:

(Step 1) Projecting the market shares of the four major property types included in the conventional conforming mortgage market:

(a) Single-family owner-occupied dwelling units (SF-O units);

(b) Rental units in 2-4 unit properties where the owner occupies one unit (SF 2-4 units);⁶

(c) Rental units in one-to-four unit investor-owned properties (SF Investor units); and,

(d) Rental units in multifamily (5 or more units) properties (MF units).⁷

(Step 2) Projecting the "goal percentage" for each of the above four property types (for example, the "Low- and Moderate-Income Goal percentage for single-family owner-occupied properties" is the percentage of those dwelling units financed by mortgages in a particular year that are occupied by households with incomes below the area median).

(Step 3) Multiplying the four percentages in (2) by their corresponding market shares in (1), and summing the results to arrive at an estimate of the overall share of dwelling units financed by mortgages that are occupied by low- and moderate-income families.

The four property types are analyzed separately because of their differences in low- and moderate-income occupancy. Rental properties have substantially higher percentages of low- and moderate-income occupants than owner-occupied properties. This can be seen in the top portion of Table D.1, which illustrates Step 3's basic formula for calculating the size of the low- and moderate-income market.⁸ In this example, low- and moderate-income dwelling units are estimated to account for 53.9 percent of the total number of dwelling units financed in the conforming mortgage market.

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Table D.1

Illustration of Market Share Calculations

Property Type	Low- and Moderate-Income Market		
	(Step 1)	(Step 2)	(Step 3)
	Share of Market (Percent)	Low-Mod Share (Percent)	Multiply (1) x (2) (Percent)
(a) SF-Owner	72.2	40.0	28.9
(b) SF-2-4 Rental	2.0	90.0	1.8
(c) SF Investor	10.8	90.0	9.7
(d) MF	15.0	90.0	13.5
Total Low-Mod Market	100.0		53.9

Property Type	Underserved Areas Market		
	(Step 1)	(Step 2)	(Step 3)
	Share of Market (Percent)	Underserved Areas Share (Percent)	Multiply (1) x (2) (Percent)
(a) SF-Owner	72.2	26.0	18.8
(b) SF-2-4 Rental	2.0	42.5	0.9
(c) SF Investor	10.8	42.5	4.6
(d) MF	15.0	48.0	7.2
Total Underserved Areas Market	100.0		31.4

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To examine the other housing goals, the "goal percentages" in Step 2 would be changed and the new "goal percentages" would be multiplied by Step 1's property distribution, which remains constant. For example, the Geographically-Targeted Goal⁹ would be derived as illustrated in the bottom portion of Table D.1. In this example, units eligible under the Underserved Areas Goal are estimated to account for 31.4 percent of the total number of dwelling units financed in the conforming mortgage market.

c. Data Issues

Unfortunately, complete and consistent mortgage data are not readily available for carrying out the above three steps. A single data set for calculating either the property shares or the housing goal percentages does not exist. However, there are several major data bases that provide a wealth of useful information on the mortgage market. HUD combined information from the following sources: the Home Mortgage Disclosure Act (HMDA) reports, the American Housing Survey (AHS), HUD's Survey of Mortgage

Lending Activity (SMLA), Property Owners and Managers Survey (POMS) and the Census Bureau's Residential Finance Survey (RFS). In addition, information on the mortgage market was obtained from the Mortgage Bankers Association, Fannie Mae, Freddie Mac and other organizations.

Property Shares. To derive the property shares, HUD started with forecasts of single-family mortgage originations (expressed in dollars). These forecasts, which are available from the GSEs and industry groups such as the Mortgage Bankers Association, do not provide information on conforming mortgages, on owner versus renter mortgages, or on the number of units financed. Thus, to estimate the number of single-family units financed in the conforming conventional market, HUD had to project certain market parameters based on its judgment about the reliability of different data sources. Sections D and E report HUD's findings related to the single-family market.

Total market originations are obtained by adding multifamily originations to the single-family estimate. Because of the wide range of estimates available, the size of the

multifamily mortgage market turned out to be one of the most controversial issues raised during the 1995 rule-making process and as noted in Section B below, an issue that the GSEs focussed on in their comments on this year's proposed rule. In 1997, HMDA reported about \$20.0 billion in multifamily originations while the SMLA reported more than double that amount (\$47.9 billion). Because most renters qualify under the Low- and Moderate-Income Goal, the chosen market size for multifamily can have a substantial effect on the overall estimate of the low- and moderate-income market (as well as on the estimate of the special affordable market). Thus, it is important to consider estimates of the size of the multifamily market in some detail, as Section C does. In addition, given the uncertainty surrounding estimates of the multifamily mortgage market, it is important to consider a range of market estimates, as Sections G-H do.

Goal Percentages. To derive the goal percentages for each property type, HUD relied heavily on HMDA, AHS, and POMS data. For single-family owner originations,

HMDA provides comprehensive information on borrower incomes and census tract locations for metropolitan areas.

Unfortunately, it provides no information on the incomes of renters living in mortgaged properties (either single-family or multifamily) or on the rents (and therefore the affordability) of rental units in mortgaged properties. The AHS, however, does provide a wealth of information on rents and the affordability of the outstanding stock of single-family and multifamily rental properties. An important issue here concerns whether rent data for the stock of rental properties can serve as a proxy for rents on newly-mortgaged rental properties. The POMS data, which were not available during the 1995 rule-making process, are used below to examine the rents of newly-mortgaged rental properties; thus, the POMS data supplements the AHS data. The data base issues as well as other technical issues related to the goal percentages (such as the need to consider a range of mortgage market environments) are discussed in Sections F, G, and H, which present the market share estimates for the Low- and Moderate-Income Goal, the Underserved Areas Goal, and the Special Affordable Goal, respectively.

d. Conclusions

HUD is using the same basic methodology for estimating market shares that it used during 1995. As demonstrated in the remainder of this appendix, HUD has attempted to reduce the range of uncertainty around its market estimates by carefully reviewing all known major mortgage data sources and by conducting numerous sensitivity analyses to show the effects of alternative assumptions. Sections C, D, and E report findings related to the property share distributions called for in Step 1, while Sections F, G, and H report findings related to the goal-specific market parameters called for in Step 2. These latter sections also report the overall market estimates for each housing goal calculated in Step 3.

During the 1995 rule-making process, HUD contracted with the Urban Institute to comment on the reasonableness of its market share approach and to conduct analyses related to specific comments received from the public about its market share methodology. Several findings from the Urban Institute reports are discussed throughout this appendix. Since 1995, HUD has continued to examine the reliability of data sources about mortgage activity. HUD's Office of Policy Development and Research has published several studies concerning the reliability of HMDA data.¹⁰ In addition, since 1995, HUD has gathered additional information regarding the mortgages for multifamily and single-family rental properties through the Property Owners and Managers Survey (POMS).¹¹ Findings regarding the magnitude of multifamily originations, as well as the rent and affordability characteristics of mortgages backing both single-family and multifamily rental properties have been made by combining data from POMS with that from internal Census Bureau files from the 1995 American Housing Survey-National Sample. The results of these more recent analyses will be presented in the following sections.

B. Comments on HUD's Market Share Methodology

1. Overall Issues

Both Fannie Mae and Freddie Mac stated that HUD's market share model (outlined in Section A above) was a reasonable approach for estimating the goals-qualifying (low-mod, special affordable, and underserved areas) shares of the mortgage market. Freddie Mac stated:

We believe the Department takes the correct approach in the Proposed Rule by examining several different data sets, using alternative methodologies, and conducting sensitivity analysis. We applaud the Department's general approach for addressing the empirical challenges.¹²

Similarly, Fannie Mae stated that “* * * HUD has developed a reasonable model for assessing the size of the affordable housing market”.¹³

However, both GSEs provided extensive criticisms of HUD's implementation of its market methodology. Their major comments fall into two general areas. *First*, the GSEs expressed concern about HUD's assumptions and use of specific data elements both in constructing the distribution of property shares among single-family owner, single-family rental, and multifamily properties and in estimating the goals-qualifying shares for each property type. The GSEs contended that HUD chose assumptions and data sources that result in an overstatement of the market estimate for each of the housing goals. In particular, the GSEs claimed that HUD overstated the importance of rental properties (both single-family and multifamily) in its market model and overstated the low-mod, special affordable, and underserved areas shares of the single-family owner market.

HUD recognizes that there is no single, perfect data set for estimating the size of the affordable lending market and that available data bases on different sectors of the market must be combined in order to implement its market share model (as outlined in Section A.2 above).

While HUD recognizes that existing mortgage market data bases vary in terms of comprehensiveness and quality, HUD believes that the GSEs have exaggerated the inadequacies of available mortgage market data, such as HMDA-reported data on the borrower income and census tract characteristics of mortgages for single-family owner properties. In addition, as explained below and demonstrated throughout this appendix, HUD has carefully combined various mortgage market data bases in a manner which draws on the strength of each in order to implement its market methodology and to arrive at a reasonable range of estimates for the three goals-qualifying shares of the mortgage market. In this appendix, HUD demonstrates the robustness of its market estimates by reporting the results of numerous sensitivity analyses that examine a range of assumptions about the relative importance of the rental and owner markets and the goals-qualifying shares of the owner portion of the mortgage market.

Second, both GSEs argued that HUD's market estimates depended heavily on a

continuation of recent conditions of economic expansion and low interest rates. According to the GSEs, HUD's range of market estimates did not include periods of adverse economic and affordability conditions such as those which existed in the early 1990s. HUD believes that the range for the market shares should be broad enough to reflect the likely volatility in the mortgage market over the three-year period (2001–03) in which the new housing goals will be in effect. As explained below and demonstrated throughout this appendix, HUD's range of market estimates for each of the housing goals is reasonable because it allows for economic and interest rate conditions significantly more adverse than have existed in the mid-to-late 1990s. As HUD stated in its 1995 final GSE rule, policy should not necessarily be based on market estimates that include the worst possible economic scenarios.

To support their contentions, the GSEs made extensive criticisms of the inadequacies of the major mortgage market data bases (such as HMDA and the American Housing Survey), offering in their place findings from market share and simulation models they had developed. Fannie Mae focused many of its comments on the inadequacy of the single-family-owner data reported by HMDA, arguing that significant portions of HMDA data are not relevant for calculating the market standard for evaluating GSE performance in the conventional conforming market. Fannie Mae's comments on this topic are discussed and critiqued by HUD in Appendix A of this final rule. Freddie Mac focused many of its comments on the size of the rental portion of the mortgage market, concluding that HUD had overestimated that portion of the market. Both Fannie Mae and Freddie Mac commented extensively on the need for the market estimates to reflect the significant volatility that exists in the single-family and multifamily mortgage markets. In this regard, the GSEs relied heavily on a Freddie-Mac-funded study by PriceWaterhouseCoopers (PWC), entitled “The Impact of Economic Conditions on the Size and the Composition of the Affordable Housing Market” (dated April 5, 2000). Because the GSEs' comments (especially those of Freddie Mac) draw heavily upon the PWC study, the next section reports and critiques its main findings. This analysis of the PWC report also incorporates related GSE comments where appropriate. Following that, other major issues raised by the GSEs about HUD's market estimates will be examined.

The discussion in the remainder of this section assumes readers are familiar with the market methodology and related concepts developed in later sections of the appendix. There is no attempt in this section to fully develop the various concepts. Rather, the purpose of this section is to provide, in one place, HUD's insights and comments on the more important issues raised by the GSEs in their comments and by PriceWaterhouseCoopers in its report. It should be noted that the GSEs' comments are also discussed throughout the development of the market share methodology in this appendix.

2. PriceWaterhouseCoopers (PWC) Study

The main purpose of the PWC study was to address how the business cycle affects the affordability of mortgages originated in the conventional conforming mortgage market. Based on its analysis of the 1990–98 mortgage market, PWC concluded that (a) changing economic conditions can quickly impact the low- and moderate-income portion of the mortgage market; (b) the highly affordable economic conditions that have existed since 1995 are not likely to persist in the future; and (c) it is difficult to project affordable lending levels accurately. PWC argues that HUD's basing its market shares on the recent past may lead to unrealistic housing goals.

HUD's review of the PWC study found that it included several interesting analyses and insights about economic volatility. For example, its regression analyses of the multifamily and affordable lending shares of the market highlight the impacts that shifts in economic conditions can have on these sectors of the market, as well as the difficulty in modeling changes in market conditions. The PWC document also included a useful critique of existing mortgage market data bases. In the event of a severe economic downturn, the PWC study will serve as an interesting reference document for policymakers and mortgage market analysts concerned about the implications of the business cycle for affordable lending.

In relation to the policy discussion surrounding the GSE housing goals, however, the PWC document contains significant shortcomings. A major shortcoming is that the PWC document underestimates the size of the multifamily mortgage market by relying heavily on multifamily originations reported in HMDA. While HMDA is for many purposes a preeminent data source on single-family lending, it has been widely discredited as a multifamily data source due to severe underreporting of loan originations. Indeed, HMDA has been rejected as inadequate in published work by highly regarded independent researchers, as well as by Fannie Mae in its comments submitted in response to HUD's proposed rule.

Another major shortcoming of the PWC report is an error in calculating the size of the single-family conventional conforming market. The discussion of single-family lending in the PWC document initially appears to contradict HUD's analysis in Appendix D of the proposed rule, but this is mainly because HUD's analysis is based upon the conforming conventional mortgage market, whereas PWC effectively includes FHA loans and loans above the conforming loan limit in portions of their analysis of the 1980–98 mortgage market. For example, in 1998, PWC estimates the size of the single-family mortgage market at \$1.5 trillion. This is identical to the widely used estimate by the Mortgage Bankers Association (MBA) for the *entire* single-family mortgage market that year, including jumbo and FHA loans.¹⁴ Because the GSEs are prohibited from purchasing loans above the conforming limit, and because HUD is directed by statute to focus on the conventional market in setting the housing goals, it is necessary to restrict analyses of the mortgage market to the

conventional conforming market if they are to be used in connection with the housing goals. Because of these statutory considerations, PWC's calculations (which effectively include mortgages outside the conventional conforming market) cannot be relied upon for policymaking purposes. PWC's error (overstating single-family originations), combined with their underestimating multifamily originations (see above), leads PWC to substantially underestimate the multifamily share of the conventional conforming mortgage market, which further leads them to substantially underestimate the low- and moderate-income share of the market.

The PWC study focuses on the low-mod share of the mortgage market during the 1990s. PWC claims that the low-mod share of the market ranged from 35 percent to 56 percent during the 1990s, with a mean of 46 percent. These figures are contrasted with HUD's 50–55 percent projection of the low-mod market for the years 2001–03. The following are observations about this and other findings in the PWC report.

- PWC begins its analysis by estimating the low-mod share of the existing mortgage market and then applying its results to an analysis of the low-mod share of the market for newly-originated mortgages. In the top portion of its Table 2, PWC assumes the low-mod share of the existing housing stock is 50 percent. In fact, it can be shown empirically that the actual proportion is 56.8 percent based on data from AHS and the Property Owners and Managers Survey (POMS).¹⁵ PWC then proceeds to compound this error. Based on the mistaken assumption that 50 percent of the housing stock is occupied by low- and moderate-income households, PWC infers that the low-mod share of the stock of mortgaged owner-occupied properties is 31 percent. Empirically, however, the correct figure is 37 percent, based on AHS data.

- Based on HUD's best estimates of the multifamily market, the multifamily mix averaged 16–17 percent for 1991–1998, not 8.7 percent as estimated by PWC.¹⁶ PWC's multifamily mix is unrealistically low because of their reliance on a flawed, HMDA-based methodology which underestimates the size of the conventional multifamily origination market, and because they used techniques for estimating the size of the single-family mortgage market equivalent in several years to including FHA and jumbo single-family loans. Inclusion of loans outside the conventional conforming market is inappropriate for purposes of setting the housing goals, as discussed above.

- Although Fannie Mae relies on the PWC study, Fannie Mae's multifamily market estimates are higher than PWC's—for example, Fannie Mae's \$35–\$40 billion multifamily origination estimate for 1997 leads to a multifamily mix of 16–18 percent (versus 11 percent for PWC) and its \$40–\$45 billion estimate for 1998 leads to a 11–12 percent multifamily mix (versus 7.3 percent for PWC).

- In calculating the multifamily share of housing units financed each year (the “multifamily mix”) PWC compounds the problems associated with its unrealistically low figure for multifamily originations by

utilizing estimates for single-family origination volume far exceeding realistic figures for the conventional conforming segment of the single-family mortgage market. When HUD implemented PWC's HMDA-based procedure for calculating the size of the multifamily market, it derived an average multifamily mix of 11.6 percent for 1991–1998, well above the PWC figure of 8.7 percent.

- Results of PWC simulations are contradicted by historical evidence. For example, PWC simulates a refinance boom and under one scenario projects that the low-mod share of the market would fall to 40 percent. However, during the 1998 refinance wave, the low-mod share of the market was 54 percent, and even GSE performance exceeded 45 percent, suggesting that PWC overestimates the effect of a refinance boom on the low-mod share.

Mainly for the above reasons, PWC substantially underestimates the size of the low-mod market during the 1990s. Using realistic estimates of the multifamily market outlined in Section C, HUD derives an average low-mod share of 52 percent during the 1990s, substantially higher than the 46 percent average advocated by PWC.

The remainder of the section summarizes the main comments of Fannie Mae and Freddie Mac on HUD's market share methodology. Because the GSEs relied heavily on the PWC study or a similar analysis, the points in this section will apply to their comments as well.

3. Volatility of the Mortgage Market

Based on the PWC study and their own analyses, both GSEs contended that HUD had not adequately considered the impact that changes in the national economy could have on the size of the conventional conforming mortgage market. The GSEs commented that HUD based its market estimates on the unusually favorable economic and housing market conditions that have existed since 1995. Fannie Mae stated that HUD's analysis overstates the size of the market because it “does not reflect the potential effects of a broader range of plausible economic scenarios”. Freddie Mac recommended that “the market estimates in the Final Rule be revised to reflect the large impact of economic conditions on the very-low, low- and moderate-income, and underserved areas' shares of the market”. As noted earlier, both GSEs relied on the PWC study which concluded that “interest rate movements and changes in the rate of economic growth are statistically significant determinants of the low- and moderate-income share of the conventional conforming mortgage market by affecting both the multifamily share of aggregate lending and the affordability composition of single-family lending”. (PWC, page iv).

As explained in Appendix A and Section F of this appendix, HUD understands that the current levels of interest rates, home prices, borrower incomes, alternative rental costs, and consumer confidence, as well as expectations about their future levels, play a role in determining whether homeownership is feasible or desirable for any particular household. HUD is also aware that the

mortgage market is very dynamic and susceptible to significant changes in conditions that would affect the overall level of affordable lending to lower-income families. HUD agrees that forecasting all these factors for upcoming years to obtain a picture of the future climate for the mortgage market is difficult.

In response to concerns expressed about the volatility of the mortgage markets over time, HUD has estimated a range of market shares for each of the housing goals—50–55 percent of the Low-Mod Goal, 23–26 percent for the Special Affordable Goal, and 29–32 percent for the Underserved Areas Goal—that reflect economic environments significantly more adverse than those which existed during the period between 1995 and 1998, when the Low-Mod Goal averaged 56.5 percent, the Special Affordable Goal, 28.1 percent, and the Underserved Areas Goal, 33.0 percent.

HUD conducted detailed sensitivity analyses for each of the housing goals to reflect affordability conditions that are less conducive to lower-income homeownership than those that existed during the mid- to late-1990s. The following examples drawn from Sections F and H of this appendix may be helpful in clarifying this issue:

- The low-mod percentage for single-family home purchase loans can fall to as low as 34 percent—or four-fifths of its 1995–98 average of over 42 percent—before the projected low- and moderate-income share of the overall market would fall below 50 percent.

- Similarly, the underserved areas percentage for owner loans can fall to as low as 22 percent—also about four-fifths of its 1995–98 average of almost 27 percent—before the projected underserved areas share of the overall market would fall below 29 percent.

HUD also conducted additional sensitivity analyses by examining recession and refinancing scenarios and varying other key assumptions, such as the size of the multifamily market. These sensitivity analyses, presented in this appendix, show that HUD's market estimates cover a range of mortgage market and affordability conditions and provide a sound basis for setting housing goals for the years 2001–03.

HUD recognizes that under certain extremely adverse circumstances, the goals-qualifying market shares could fall below its estimates. The PWC study and the GSEs presented estimates based on a hypothetical economic slowdown accompanied by low affordability conditions that fall below the range of HUD's estimates. Fannie Mae, for example, included mortgage originations falling to as low as \$771 billion and as high as \$1,706 billion in its "likely single family mortgage market volume ranges" for the year 2001. However, as HUD stated in its 1995 GSE rule, setting goals so that they can be met even under the worst of circumstances is unreasonable. If macroeconomic conditions change dramatically, then the levels of the goals can be revised to reflect the changed conditions. As discussed below in Section F, FHEFSSA and HUD recognize that conditions could change in ways that would require revised expectations. Thus,

HUD is given the statutory discretion to revise the goals if the need arises. If a GSE fails to meet a housing goal, HUD has the authority to determine that the goal was not feasible, and not take further action.

4. Size of the Multifamily Market

Section C contains a detailed discussion of the size of the conventional multifamily origination market, summarizing findings from a variety of sources regarding the size of the conventional multifamily mortgage market, measured in terms of dollars, units, and as a share of total conventional conforming annual mortgage origination volume, a key factor influencing the share of the overall market comprised of units meeting each of the housing goals. This section considers a number of alternative data sources providing evidence on conventional multifamily origination volume over a number of years, in some cases the entire 1990–1999 period. The approaches considered here include the HUD Survey of Mortgage Lending Activity (SMLA); Home Mortgage Disclosure Act data (HMDA); and a projection model developed by the Urban Institute based on data from the 1991 Residential Finance Survey (RFS). A new methodology, developed by HUD for purposes of this analysis, is discussed, as are estimates submitted by Fannie Mae and Freddie Mac on their comments on the proposed rule. Estimates for 1990 from the RFS and for 1995 from the Property Owners and Managers Survey (POMS) are also discussed.

Based on the likely range of annual conventional multifamily origination volume, multifamily units represent an average of 16–17 percent of units financed each year during the 1990s.¹⁷ HUD's estimated multifamily market shares exceed estimates prepared by PWC (averaging 8.7 percent for 1991–1998) for two reasons, as mentioned previously. One is that PWC's adjusted HMDA methodology does not adequately correct for underreporting in HMDA, resulting in unrealistically low estimates of the size of the conventional multifamily origination market. Another reason that PWC's estimated multifamily market shares are low is that a number of their calculations appear to include FHA and jumbo loans in estimating the number of single-family units financed each year, as discussed above. HUD's market share calculations, in contrast, are based on the multifamily share of conventional conforming mortgage loans originated each year.

The multifamily share of the conforming conventional market (or "multifamily mix") derived from this discussion of multifamily origination volume is utilized below as part of HUD's analysis of the share of units financed each year meeting each of the housing goals. For purposes of that analysis, a multifamily mix of 16.5 percent is reasonable, based upon the analysis and discussion below. However, a 15 percent market share can be utilized as an alternative market share estimate corresponding to a somewhat less favorable environment for multifamily lending. While somewhat low from an historical standpoint, a 15 percent

mix more readily accommodates the possibility of a recession or heavy refinancing year than would baseline assumptions based more strictly on historical data. In order to more fully consider the effects of an even more adverse market environments, an alternative multifamily mix assumptions of 13.5 is also considered, as well as a number of others.

5. Size of the Single-Family Rental Market

Both GSEs argued that the single-family (1–4) investor portion of the single-family mortgage market should be eight percent or less of total single-family originations, based on HMDA data. In both 1995 and in the proposed rule, HUD considered three scenarios for investor mortgages when estimating the housing goals—a baseline model that assumed 10 percent, a lower scenario that assumed 8 percent, and a higher scenario that assumed 12 percent. HUD's base case of 10 percent is well below the 17.3 percent reported by the 1991 Residential Finance Survey (which is considered accurate but unfortunately is out-of-date) and above the 7–8 percent estimates provided by HMDA over the past few years. In 1995, research by Urban Institute researchers concluded that the HMDA estimates were too low (although the GSEs raise concerns about this research in their comments). HUD has decided to stay with its baseline 10 percent estimate but it acknowledges that due to limited data there is some uncertainty about the investor share of the single-family market, which will be clarified when the next Residential Finance Survey is released in a couple of years. Sensitivity analyses indicate that reducing the investor share from 10 percent to 8 percent would reduce the low-mod market share by 1.05 percent, the special affordable share by 0.90 percent, and the underserved areas share by 0.36 percent.

6. Relevant Market for Single-Family Owner Market

Both GSEs provided numerous comments concerning the types of mortgages that HUD should exclude from the definition of the single-family owner market when HUD is calculating the market shares for each housing goal. The GSEs comments and HUD's response to them are discussed in Section A of Appendix A. As noted there, HUD believes that the risky, B&C portion of the subprime market should be excluded from the market definition for each of the housing goals. HUD includes the A-minus portion of the subprime market in its market estimates. This appendix explains HUD's method for making this adjustment to the overall market estimates.

As explained in Appendix A, HUD disagrees with most of the other adjustments proposed by the GSEs. Excluding important segments of the lower-income mortgage market as the GSEs recommend would distort HUD's estimates of the goals-qualifying shares of the conventional conforming market.

7. Shortcomings of Various Mortgage Market Data Bases

Major mortgage market data bases such as HMDA and the American Housing Survey (AHS) are used to implement HUD's market

methodology. In their comments, Fannie Mae and Freddie Mac, as well as PWC, each provided a useful critique of the various mortgage data bases. Based on its analysis, Freddie Mac concluded that HUD should revise its market share estimates to reflect "the lack of reliable data". Similarly, Fannie Mae concluded that "HUD analysis overstates the size of the market because it relies on unreliable data sources. * * *". Fannie Mae further states that "* * * HUD has chosen to extrapolate from several disparate data sources in ways that inflate the Department's estimate of the market size for each of the goals". PWC, as well as the GSEs, expressed concern that mortgage market data bases had not improved since 1995, when HUD issued its last GSE rule on the housing goals.

Examples of problems noted by the GSEs include: limited variables (such as LTV ratio) and bias in HMDA data; inability of HMDA to identify important segments of the market (such as subprime lenders); underreporting of multifamily mortgages in HMDA and general unreliable reporting of rental mortgages in other data bases; underreporting of income in the AHS; and the fact that some important mortgage market data bases such as the 1991 Residential Mortgage Finance Survey are simply out of date. Both GSEs expressed particularly strong criticism of HUD's use of data on the rental market, that is, estimates of the proportion of 1-to 4-unit rental properties and of annual multifamily origination volume.

HUD agrees that a comprehensive source of information on mortgage markets is not available. However, HUD considered and analyzed a number of data sources for the purpose of estimating market size, because no single source could provide all the data elements needed. In these appendices, HUD has carefully defined the range of uncertainty associated with each of these data sources, has pulled together estimates of important market parameters from independent sources, and has conducted sensitivity analyses to show the effects of various assumptions. In fact, Freddie Mac noted that "We [Freddie Mac] support the Department's approach for addressing the empirical challenges of setting the goals by examining several different data sets, using alternative methodologies, and conducting sensitivity analysis."

While HUD recognizes the shortcomings of the various data and the inability to derive precise point estimates of various market parameters, HUD, however, does not believe that these limitations call for expanding the range of the market estimates, as suggested by the GSEs. One purpose of this appendix is to demonstrate that careful consideration of independent data sources can lead to reliable ranges of estimates for the goals-qualifying shares of the mortgage market. It should also be emphasized that while there are some problems with existing mortgage market data, there is a wealth of information on important components of the market. HMDA provides wide coverage of the single-family owner market in metropolitan areas, yielding important information on the borrower income and census tract (underserved area) characteristics of that market. The AHS

provides excellent information on the affordability characteristics of the single-family rental and multifamily housing stock. As explained in Section F of this appendix, POMS data confirm that the rent affordability data based on the AHS stock provide reliable estimates of the rent characteristics of newly-mortgaged dwelling units in the rental stock.

HUD's specific responses to the GSEs' comments on data are included throughout these appendices. For example, see subsection B.4 above and Section C of this appendix for a discussion of the multifamily data; as explained there, HUD concludes that Freddie Mac and PWC, in particular, underestimate the size of the multifamily market. Issues related to single-family rental data are discussed in B.5 above and in Section D to this appendix. Appendix A provides a complete discussion of the single-family owner data reported in HMDA. As noted in Section A of Appendix A, HUD disagrees with the GSEs in terms of the seriousness of the bias problem in HMDA data. It should also be mentioned that HUD does not rely heavily on some of the data bases that the GSEs criticize. For example, Freddie Mac argues that the AHS underreports borrower income; but HUD relies on HMDA data for the borrower income characteristics of home purchase and refinance markets. According to the out-of-date RFS data, investor mortgages account for 17 percent of the single-family mortgage market the RFS; as explained in above, HUD's baseline model uses 10 percent, with sensitivity analyses at 8 percent and 12 percent.

8. Miscellaneous Comments

There are several specific comments of the GSEs that should be mentioned and clarified. In many cases, these comments relate to the broad issues that have already been discussed in this section. However, because of their technical nature, it was decided to discuss them in this separate section rather than including them in the above discussion.

- On page 17 of its Appendix III, Freddie Mac states that HUD assumed the investor share of single-family mortgages was 10.7 percent; in fact, HUD's baseline model assumed 10 percent.
- On page 22 of its Appendix III, Freddie Mac states that because HMDA does not identify subprime and manufactured housing loans, the proposed rule does not adjust for these loans originated by prime lenders. As this appendix explains, HUD's market estimates for the three housing goals are adjusted for all loans originated in the B&C portion of the subprime market.
- On page 23 of its Appendix III, Freddie Mac states that HUD does not compare HMDA and GSE data with the same precision as Berkovec and Zorn because HUD has included HMDA-reported non-metropolitan loans, which are poorly reported by HMDA. Freddie Mac is incorrect. HUD's analysis in Table A.4a is based on HMDA and GSE data for only metropolitan areas. In addition, HUD does not include GSE purchases of FHA loans in Table A.4a, as suggested by Freddie Mac.
- On page 1 of its Appendix III, Freddie Mac states that HUD's market projections

"effectively are based on an analysis of mortgage lending patterns since 1995." Freddie Mac is incorrect, as explained in B.3 above and throughout this appendix. For example, as reported in Table D.15 below, the low-mod share of the conventional conforming market has averaged over 56 percent since 1995; this compares with HUD's projection of 50–55 percent for this market.

- On page 6 of its Appendix III, Freddie Mac states that HMDA accurately reports multifamily originations for commercial banks. HUD's analysis concurs with that of other researchers that HMDA significantly underreports multifamily originations by commercial banks. For example, Crews, Dunsky and Follain (1995) conclude that "HMDA surely underestimates lending by both mortgage bankers and commercial banks."¹⁸
- On pages 20–21, Freddie Mac uses the AHS and POMS to estimate the distribution of newly-mortgaged units by property type. Based on this analysis, Freddie Mac estimates that multifamily units represented 10.6 percent of newly financed dwelling units over the 1993–95 period. Based on HUD's calculations, however, multifamily units were 20.6 percent of conventional conforming units financed during 1993–1995. Freddie Mac may have underestimated the number of rental units by excluding observations with missing origination year, and may have overestimated the number of single-family units by including jumbo or FHA loans.
- In its comments (page 30) about the low-mod goal, Freddie Mac states that "an analysis limited to the exceptional economic environment since 1995 would suggest a narrow range centered at 50 percent * * *". As explained in Section F of this appendix, the low-mod goal averaged 56.5 percent between 1995 and 1998.
- On pages 34 and 35 of its comments, Fannie Mae states that HUD's approach to housing and economic conditions involves "point estimates". As this appendix makes clear, HUD's analysis is based on a range of market estimates—not point estimates as stated by Fannie Mae. Of course, the "likely single-family mortgage market volume ranges" chosen by Fannie Mae are not necessarily the ones HUD would choose for setting housing goals for the next three years. Fannie Mae offers wide ranges in mortgage market projections for the years 2001–03; for example, \$771 billion to \$1,706 billion is its projection for the year 2001.
- Fannie Mae states "HUD should provide an explicit range of goals based upon differing economic outlooks with reasonable chances of occurring—ranging from modest recession to a continued boom economy". As demonstrated in Sections F–H, HUD's market ranges are reasonably set to include much more adverse economic and affordability conditions than have existed during the past few years.
- On pages 66–67, Fannie Mae estimates a market range of 48–51 percent for the Low-Mod Goal, 21–24 percent for the Special Affordable Goal, and 24–28 percent for the Underserved Areas Goals; the range covers a recession scenario and a growth scenario and

adjusts for B&C loans. Fannie Mae states that its market share analysis supports the proposed higher levels for the new housing goals but it also shows that the GSEs will experience greater difficulty achieving the new goals (and particularly the underserved areas goal) than suggested by HUD's market share estimates. Fannie Mae assumes a lower percentage of single-family and multifamily rental properties than HUD, which is one reason Fannie Mae obtains lower market estimates than HUD. Fannie Mae assumes that the goals-qualifying shares for the single-family owner market can fall to their 1993 levels when, for example, the underserved areas share of the owner market equaled 20 percent. As explained in Section G, HUD's range of market estimates (29–32 percent) for the underserved areas goal is consistent with the underserved areas owner percentage for the single-family market falling from its average of 28 percent over the 1995–98 period to 22 percent. Fannie Mae's assumes an additional two percentage point decline in its sensitivity analysis. It should also be noted that while Fannie Mae adjusts for B&C loans, it does not make the 1–2 percentage point upward adjustment to incorporate the effects of underserved counties in non-metropolitan areas.

9. Conclusions

In considering the levels of the goals, HUD carefully examined the comments on the methodology used to establish the market share for each of the goals. Based on that thorough evaluation, as well as HUD's additional analysis, the basic methodology employed by HUD is a reasonable and valid approach to estimating market share and the percentage range for each of the three market share estimates do not need to be adjusted from those reported in the proposed rule. While a number of technical changes have been made in response to the comments, the approach for determining market size has not been modified substantially. The detailed evaluations show that the methodology, as modified, produces reasonable estimates of the market share for each goal. HUD recognizes the uncertainty regarding some of these estimates, which has led the Department to undertake a number of sensitivity and other analyses to reduce this uncertainty and also to provide a range of market estimates (rather than precise point estimates) for each of the housing goals.

C. Size of the Conventional Multifamily Mortgage Market

This section derives projections of conventional multifamily mortgage origination volume.¹⁹

The multifamily sector is especially important in the establishment of housing goals for Fannie Mae and Freddie Mac because multifamily properties are overwhelmingly occupied by low- and moderate-income families. For example, in 1999, 9.5 percent of units financed by Fannie Mae were multifamily, but 95 percent of those units met the Low- and Moderate-Income Goal, accounting for 20 percent of all of Fannie Mae's low- and moderate-income purchases for that year.²⁰ Multifamily acquisitions are also of strategic significance with regard to the Special Affordable Goal. In 1999, 43 percent of units backing Freddie Mac's multifamily acquisitions met the Special Affordable Goal, representing 22 percent of units counted toward its Special Affordable Goal, at a time when multifamily units represented only 8.3 percent of total annual purchase volume.²¹

This discussion is organized as follows: Section 1 identifies and evaluates available data resources regarding the dollar value of conventional multifamily mortgage origination during 1990–1999. Section 2 discusses loan amount per unit, a key parameter in estimating the number of units backing multifamily originations. Section 3 summarizes findings from a variety of sources regarding the size of the conventional multifamily mortgage market, measured in terms of dollars, units, and as a share of total conventional conforming annual mortgage origination volume, a key factor influencing the share of the overall market comprised of units meeting each of the housing goals. Inferences regarding the likely range and “baseline” estimates of annual multifamily origination volume for 1990–1999 are drawn.

1. Multifamily Data Sources

This section considers a number of alternative data sources providing evidence on conventional multifamily origination volume over a number of years, in some cases the entire 1990–1999 period. The approaches considered here include the HUD Survey of Mortgage Lending Activity (SMLA); Home Mortgage Disclosure Act data (HMDA); and a projection model developed by the Urban Institute based on data from the 1991 Residential Finance Survey (RFS). A new methodology, developed by HUD for purposes of this analysis, is discussed, as are estimates submitted by Fannie Mae and Freddie Mac in connection with the Department's GSE rulemaking efforts. Estimates for 1990 from the RFS and for 1995 from the Property Owners and Managers Survey (POMS) are also discussed.

a. Survey of Mortgage Lending Activity (SMLA)

The data that enter into SMLA were compiled by HUD until 1998 from source materials generated in various ways from the different institutional types of mortgage lenders. Data on lending by savings associations were collected for HUD by the Office of Thrift Supervision; these data cover all thrifts, not a sample. Mortgage company and life insurance company data were collected through sample surveys conducted by the Mortgage Bankers Association of America and the American Council of Life Insurance, respectively. Data on commercial banks and mutual savings banks were collected through sample surveys conducted by a number of different entities over the years. Federal credit agencies such as the U.S. Small Business Administration and HUD non-FHA programs as well as State credit agencies such as housing finance agencies reported their data directly to HUD. Local credit agency data are collected by HUD staff from a publication that lists their mortgage financing activities. The SMLA was discontinued by HUD in 1998, and data are available only through 1997.

Commercial bank data in the SMLA have been questioned by a number of researchers. Part of the problem arises from the possibility of double-counting of originations by mortgage banks in the American Bankers Association (ABA) and Mortgage Bankers Association (MBA) surveys conducted as part of SMLA. Originations by mortgage banks which are affiliated with commercial banks may be counted in both surveys. A 1995 analysis prepared by Crews, Dunskey and Follain found that, in 1993, the SMLA conventional origination figure of \$30 billion was calculated on the basis of overstated originations by commercial banks, but understated lending volume by mortgage banks, life insurance companies, and individuals. Taking all of these factors into consideration, as well as other evidence, they conclude that actual 1993 origination volume appears to be in the range of \$25–\$30 billion.²²

One solution to the double-counting problem in SMLA is to remove the mortgage bank subtotal from total origination volume. The resulting figure may provide a more accurate representation of conventional multifamily lending volume. Table D.2 presents SMLA figures for 1990–1997, including and excluding mortgage banks.

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Table D.2

**Multifamily Conventional Origination
Volume, 1990-1997
Survey of Mortgage Lending Activity**

Year	Total (\$ billions)	Total less Mortgage Banks (\$ billions)
1990	\$30.6	\$25.9
1991	\$24.6	\$22.7
1992	\$25.2	\$23.5
1993	\$30.0	\$28.9
1994	\$31.7	\$31.7
1995	\$37.9	\$32.4
1996	\$43.7	\$33.3
1997	\$44.6	\$35.5

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b. Home Mortgage Disclosure Act (HMDA)

HMDA data are collected by lending institutions and reported to their respective regulators as required by law. HMDA was enacted as a mechanism to permit the public to determine locations of properties on which local depository institutions make mortgage loans, "to enable them to determine whether depository institutions are filling their obligations to serve the housing needs of the communities and neighborhoods in which they are located * * *" (12 U.S.C. 2801). HMDA reporting requirements generally apply to all depository lenders with more than \$29 million in total assets and which have offices in Metropolitan Statistical Areas. Reporting is generally required of other mortgage lending institutions (e.g. mortgage bankers) originating at least 100 home purchase loans annually provided that home purchase loan originations exceed 10 percent of total loans. Reporting is required for all loans closed in the name of the lending institution and loans approved and later acquired by the lending institution, including multifamily loans. Thus, the HMDA data base concentrates on lending by depository institutions in metropolitan areas but, unlike SMLA and RFS, it is not a sample survey; it is intended to include loan-level data on all loans made by the institutions that are required to file reports.

A deficiency of the HMDA database is that there is compelling evidence of significant underreporting of multifamily mortgages. In their 1995 analysis, Crews, Dunsky and Follain conclude "We clearly demonstrate that HMDA alone is not an accurate measure of the total market. Our argument is based

upon two facts. First, HMDA was not designed to cover multifamily lending by all lenders; it focuses on lending done primarily by commercial banks, thrifts, and large mortgage bankers in metropolitan areas. Second, HMDA surely underestimates lending by both mortgage bankers and commercial banks."²³ In its comments submitted in response to HUD's proposed rule, Fannie Mae observes that "HMDA is not considered a reliable source of multifamily mortgage originations because it provides an incomplete view of non-depository institution sources of loans."²⁴

It does not appear that HMDA has significantly improved its multifamily coverage since the time of the 1995 Crews, Dunsky and Follain analysis. For example, in 1998, HMDA reports approximately \$1 billion in FHA multifamily origination volume, compared with \$2.5 billion reported by FHA. The underreporting appears to be even more serious with regard to GSE acquisitions. The 1998 HMDA file reports approximately \$2 billion in Fannie Mae multifamily transactions, compared with an actual total of \$12.5 billion. A sizeable shortfall is also evident with regard to Freddie Mac, with HMDA reporting 1998 transactions volume of \$295 million, compared with an actual figure of \$6.6 billion.

In addition, the HMDA data base does not cover a number of important categories of multifamily lenders such as life insurance companies and State housing finance agencies, providing another reason that the HMDA data understates the size of the multifamily market.

One way to address the undercounting problem in HMDA is to incorporate an adjustment factor to correct for underreporting, for example by multiplying each year's annual total by 1.25, as suggested by PriceWaterhouseCoopers (PWC) in their report prepared for Freddie Mac in connection with HUD's proposed rule. However, this 1.25 correction factor is based upon an estimate of underreporting of single-family loans in HMDA, and may be too small to accurately capture the degree of multifamily underreporting in HMDA, judging from comparisons between actual and HMDA-reported volume by the GSEs and FHA cited above.

To the adjusted HMDA figure, PWC then adds an estimate for originations by life insurance companies by utilizing figures on multifamily loan commitments published by the American Council on Life Insurance (ACLI), a trade group which conducts regular surveys. Table D.3 shows annual conventional multifamily origination volume as reported in HMDA, as well as an adjusted HMDA figure including a 1.25 correction factor as well as the ACLI figure for loan commitments in the last quarter of the preceding year as well as the first three quarters of each origination year. In calculating annual totals, the absolute value is taken of loan amounts reporting as negative numbers. The table shows a sharp drop in origination volume between 1990 and 1991, possibly associated with the commercial real estate recession of the early 1990s. However, the implication that multifamily mortgage lending has remained 20 percent below the 1990 level for the entire remainder of the decade is inconsistent with

other data sources, and raises further concerns regarding the accuracy and

reliability of HMDA as a multifamily data source.

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Table D.3

**Multifamily Conventional Origination
Volume, 1990-1998*
Home Mortgage Disclosure Act**

Year	Total (\$ billions)	1.25*HMDA + ACLI (\$ billions)
1990	\$38.8	\$51.4
1991	\$8.1	\$11.8
1992	\$10.2	\$14.0
1993	\$12.8	\$17.9
1994	\$14.7	\$21.4
1995	\$12.8	\$20.4
1996	\$15.8	\$23.8
1997	\$19.6	\$28.8
1998	\$27.1	\$38.3

* Calculating using absolute value of loan amounts < 0.

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A difficulty with the adjustment factor approach is that very little is known regarding the degree of underreporting of multifamily originations in HMDA. There is no reason that the 20 percent underreporting figure sometimes used in single-family discussions of HMDA is applicable to multifamily. Indeed, if the degree of underreporting of FHA originations or GSE acquisitions noted above is representative, even the adjusted HMDA figures are likely to significantly underreport the actual totals.

c. Urban Institute Statistical Model

In 1995, Urban Institute researchers developed a model to project multifamily origination volumes from 1992 forward, based on data from the 1991 Survey of Residential Finance.²⁵ They applied a statistical model of mortgage terminations based on Freddie Mac's experience from the mid-1970s to around 1990. While mortgage characteristics in 1990 are not wholly similar to the characteristics of these historical mortgages financed by Freddie Mac, nevertheless the prepayment propensities of contemporary mortgages may at least be approximated by the prepayment experience

of these historical mortgages. The research methodology took account of the influence of interest rate fluctuations on prepayments of the historical mortgages; the projections assumed that prepayments are motivated mainly by property sales.

Table D.4 shows annual projected conventional multifamily origination volume as reported in the Urban Institute model, derived by subtracting actual FHA origination volume from the overall projected multifamily total each year, except in 2000, when 1999 FHA originations are used as a proxy for 2000 originations.

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Table D.4

**Projected Multifamily Conventional
Origination Volume, 1990-2000*
Urban Institute Hazard Model**

Year	Total (\$ billions)
1992	\$28.7
1993	\$30.2
1994	\$33.8
1995	\$38.5
1996	\$40.6
1997	\$43.9
1998	\$40.6
1999	\$48.8
2000	\$50.6

* Subtracts actual FHA originations from projected total originations each year, except 2000, which uses 1999 FHA originations as proxy for 2000.

BILLING CODE 4210-27-C**d. New Methodology for Recent Years**

In the context of (i) the discontinuation of SMLA; (ii) evidence of significant underreporting in HMDA; and (iii) increased availability of data regarding purely private, non-GSE securitization of commercial mortgage loans, HUD has developed a new methodology for the purpose of preparing a lower-bound estimate for the minimum size of the multifamily market. The following sources are combined to calculate the estimated size of the conventional multifamily market in a way that is relatively complete, but which avoids double-counting and excludes seasoned loans:

(1) *HMDA portfolio loans*. This component comprises conventional loans originated by depositories and not sold, plus conventional loans acquired by depositories but not sold, less overlap between these two categories. In principle, if a loan originated during the current year is acquired by a depository, it should show up as an origination. However, due to underreporting, this is not always the case. The procedure utilized here is to sum conventional originations by depositories and conventional acquisitions by depositories, and then to utilize a matching procedure to identify loans falling into both categories, which are then subtracted.

(2) *GSE purchases of current-year acquisitions*. A data series on GSE multifamily transactions covering 1995-1999

that excludes non-GSE securities and repurchased GSE securities is published by OFHEO in their 2000 Report to Congress. These exclusions are needed in order to avoid double-counting. However, this figure must be further adjusted to take into consideration the fact that some of these transactions involved seasoned purchases, and a few involve government-insured mortgages. In order to adjust the data for this possibility, the OFHEO figures are reduced by 33 percent, the figure derived by calculating the proportion of seasoned and FHA mortgages among the GSEs' cash and swap transactions during 1995-1999, using GSE loan-level data provided to HUD. Any loans sold by depositories to the GSEs would be counted here, but not in the HMDA component, which is restricted to loans kept in portfolio by depositories.

(3) *Commercial Mortgage Backed Security multifamily loans*. *Commercial Mortgage Alert*, Hoboken NJ, publishes detailed, transaction-level database that provides information on transaction size and the proportion of collateral comprised by multifamily collateral for the entire 1990-1999 period. Multifamily loan amounts at the transaction level are derived by applying the multifamily proportion to the transaction amount. These transaction-level loan amounts are then aggregated over all transactions conducted during a calendar year to derive an annual total. This data

series identifies securitizations by depositories, government and insurance companies; seasoned loans; GSE transactions; and transactions involving foreign collateral, all of which are in order to avoid double-counting. Thus, loans included in this component consist of nongovernment, non-GSE securitizations of recently-originated mortgages by non-depository, non-life insurance company institutions.

(4) *Conventional originations by life insurance companies*. Source: American Council on Life Insurance (ACLI) quarterly data on multifamily loan commitments. Annual originations estimated by combining commitment in the last quarter of the preceding year and the first three quarters of the origination year.

(5) *Conventional originations by private pension funds; state and local retirement funds; federal credit agencies; state and local credit agencies*. Source: SMLA (1990-1997). Data not available for 1998 and subsequent years.

This methodology is intended to generate a lower-bound estimate for the annual size of the conventional multifamily mortgage origination market. A more accurate and realistic estimate could be derived if corrections for the following could be generated:

(1) *HMDA under-reporting*. To the extent that lenders do not report to HMDA, this data source leads to downward bias in origination