Albuquerque Housing Supply and Demand; and the Impact of New Housing Development on Older Neighborhoods 1995-2000

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Abstract

Between 1995 and 2000, Albuquerque single-family housing starts numbered over 18,000 while multi-family housing starts lagged considerably behind and numbered just over 5,000. Low interest rates coupled with a surge in entry-level housing demand were the leading causes for the strong growth in single-family construction activity. Most of the entry-level housing units were constructed on the west side of the City. First-time homebuyer programs were attractive particularly to multi-family housing tenants and the result was a large number of these tenants relocating to newer neighborhoods that contained entry-level and affordable housing; in turn demand for multi-family housing diminished and the market responded by scaling back new multi-family construction projects.

Between 1995 and 2000, Albuquerque housing demand due to in-migration remained relatively steady. Resident relocation within the City and the young adult-aged individuals buying homes generated most of the demand while the growth in housing supply was primarily attributed to a large increase in the number of multi-family housing units available for rent. Overall, marginal housing demand exceeded marginal housing supply during the above-specified period. Total housing stock continued to grow, but this growth was surpassed likely by the large increase in the number of young adult-aged individuals buying homes.

During the second half of the 1990s, population within the older neighborhoods of the City declined. The population loss was largely due to the fact that these neighborhoods are highly concentrated with multi-family housing and that vacancy rates increased significantly, resulting in a large number of multi-family housing units that became vacant. Aided by the availability of low-mortgage interest rates, homebuilders were very successful in their ability to lure multi-family housing tenants away from rental living arrangements to owner living arrangements. These tenants likely moved to neighborhoods that contained entry-level and affordable housing and it so happened that those neighborhoods tended to be new and on the west side of the City. To a much lesser extent, existing homeowners may have made the move because of the favorable deals that came with purchasing a new home. Finally, there were no signs of large-scale deterioration in the older neighborhoods of the City. While there may have been isolated pockets of decay, overall values of homes in these neighborhoods were holding steady.

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Introduction

There are two sets of growing speculation: one is that Albuquerque housing demand is not keeping pace with supply, and the other is that residents are moving out of older neighborhoods[1] and into newer neighborhoods located, primarily, on or near the fringes.[2] These migrants are also believed to be unable to sell their old homes and are thus faced with maintaining two homes. Consequently, these older neighborhoods should see increasing leasing activity and/or increasing vacancy rates, and a steady decline in property upkeep. In turn, these neighborhoods become less desirable, property values depreciate and eventually the neighborhoods are rundown and abandoned.

Is there any validity to such speculations? Several issues need to be addressed before conclusions can be drawn, questions such as: Is there growing demand for housing or has it reached its peak? Rather yet, is it declining? Are older neighborhoods losing population and if so why and where is it going? What changes in vacancy rates are observed in these older areas? What is happening to home sale prices? How long have these homes been on the market? Are older neighborhoods deteriorating and if, in fact, they are, why? Can it be said that it is due to the out-migration of residents to newer neighborhoods or it is due to factors that are entirely different? Answers to many of these questions may not be possible because of lack of information. Undertaking a study that can explain if and how new housing development impacts older neighborhoods is daunting because of the uncertainty and variability that exists. A set of variables should be advocated on theoretical grounds and then analyzed; by excluding these steps, any explanation can only be arrived at by conjecture.

This report is intended to provide: 1) an overview of housing market trends and the relationship between housing supply and housing demand; and 2) a general analysis which will indicate the impact new housing development has on older neighborhoods. This report does not provide for an extensive and in-depth analysis, but rather is an attempt to assess these impacts using best available data and trend analysis.

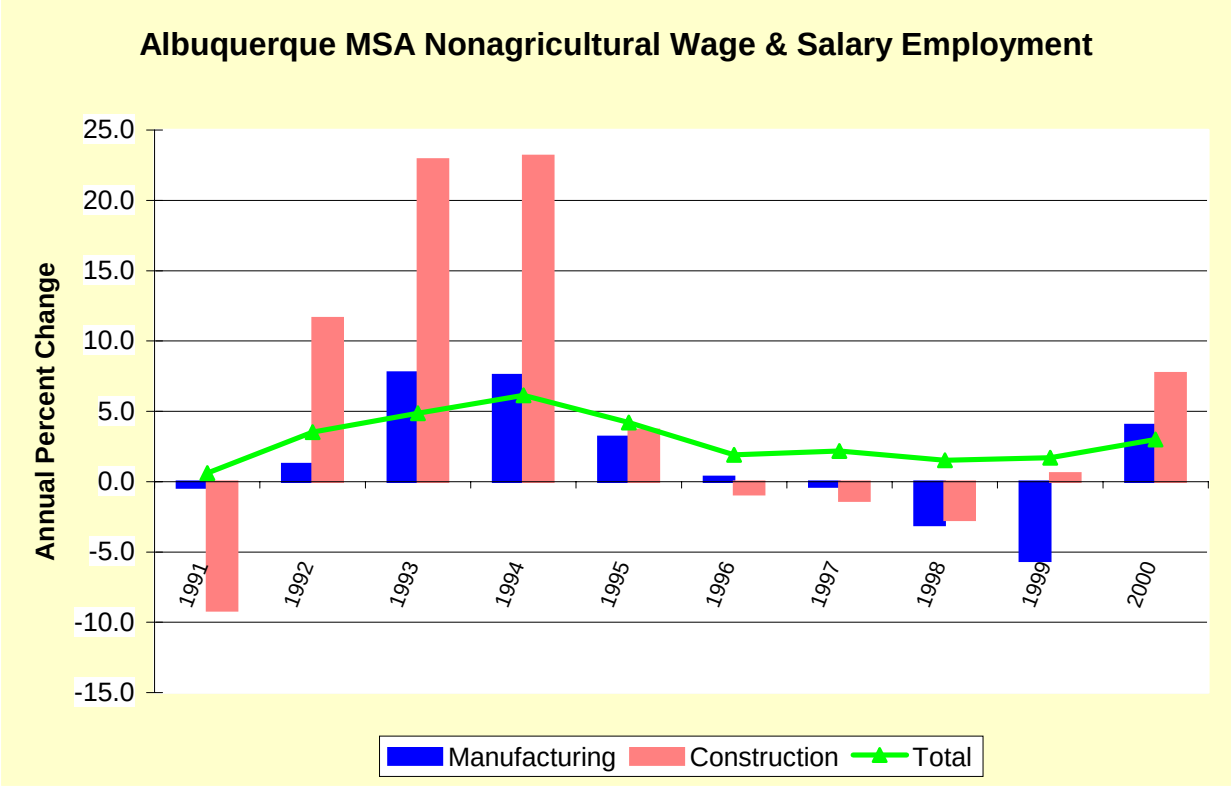
Albuquerque Population Size and Population Growth Rate

Albuquerque population grew from 418,839 in 1995 to 448,607 in 2000. This increase of more than 29,000 represents an annual growth rate of approximately 1.3 percent. Natural population[3] increase accounted for about 20,000, representing about 69 percent of the total growth. The remaining 31 percent is attributed to net in-migration.[4]

Albuquerque MSA Employment Trends

Albuquerque population grew at an annual compound rate of about 1.7 percent in the first half of the 1990s, but slowed down to about 1.3 percent in the second half. This trend can be largely attributed to the slow down in new employment growth. Figure 1 shows that during most of the early 1990s, employment grew at annual rate 2-3 times greater than it did in the second half of that decade. The deceleration is largely attributed to employment losses in the manufacturing and construction sectors.

Figure 1



Source: New Mexico Department of Labor.

Albuquerque Household Size

In 1990, the average household size of an owner-occupied unit was 2.73 and by 2000, it dropped to 2.55. In 1990, the average household size of a renter-occupied unit was 2.28 and by 2000, it dropped to 2.16. Overall, average household size dropped slightly from 2.46 in 1990 to 2.40 in 2000.

Albuquerque Existing Housing Stock[5] and Rate of Supply

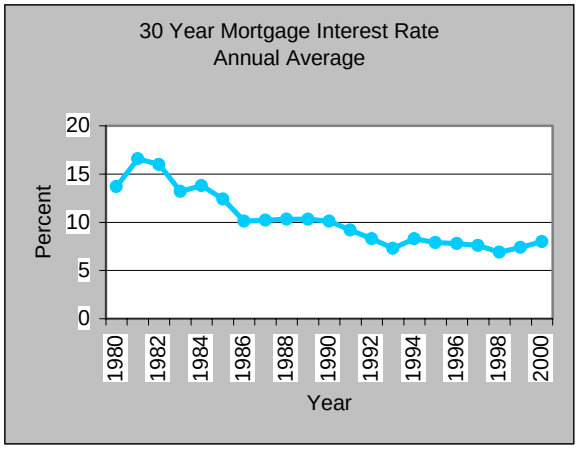
At 1995-year end, Albuquerque single-family housing totaled 113,454 units and by 2000 year-end, it increased to 129,058 for an increase of approximately 2.6 percent compounded annually. At 1995-year end, multifamily housing totaled 58,038. By 2000-year end, it totaled 63,541 for a 1.8 percent annual compound rate increase.

Albuquerque Housing Market Trends

Since 1995, Albuquerque single-family housing starts have been strong, while multi-family housing starts have tapered off dramatically (see Table 1 on page 5). Low interest rates coupled with a preponderance of entry-level housing[6] demand fueled the surge in single-family housing construction. As illustrated in Figure 2 below, the 30 year-fixed rate mortgage stayed above 10 percent throughout the 1980s but dropped considerably beginning in the early 1990s. The rates dropped from 10.1 percent in 1990 to 7.3 percent in 1993. It rose up above 8 percent in 1994 then dropped to between 7.6 and 7.9 percent in the following three years. A low of 6.9 percent was reached in 1998 and since then, the rates have continued to climb, but gradually.

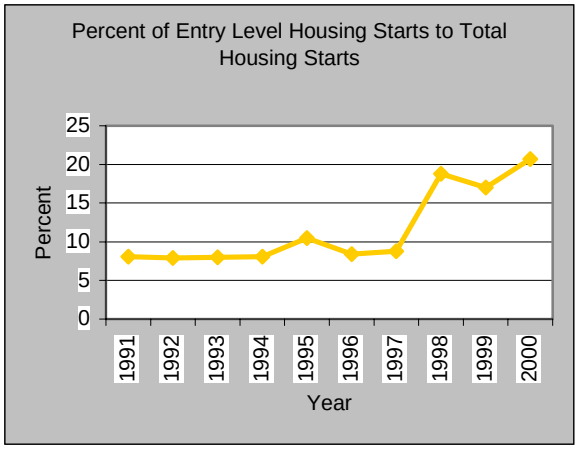
Entry-level housing starts have grown noticeably beginning in 1998 (See Figure 3 below; also, all monetary values used to define entry-level housing are expressed in real 2000 dollars). Prior to 1998, the percentage of homes that are considered entry-level ranged anywhere from 7.9 to 10.5 percent. In 1998 it grew to 18.8 percent and by 2000, it rose to 20.7 percent.

Figure 2



Source: Federal Home Loan Mortgage Corporation.

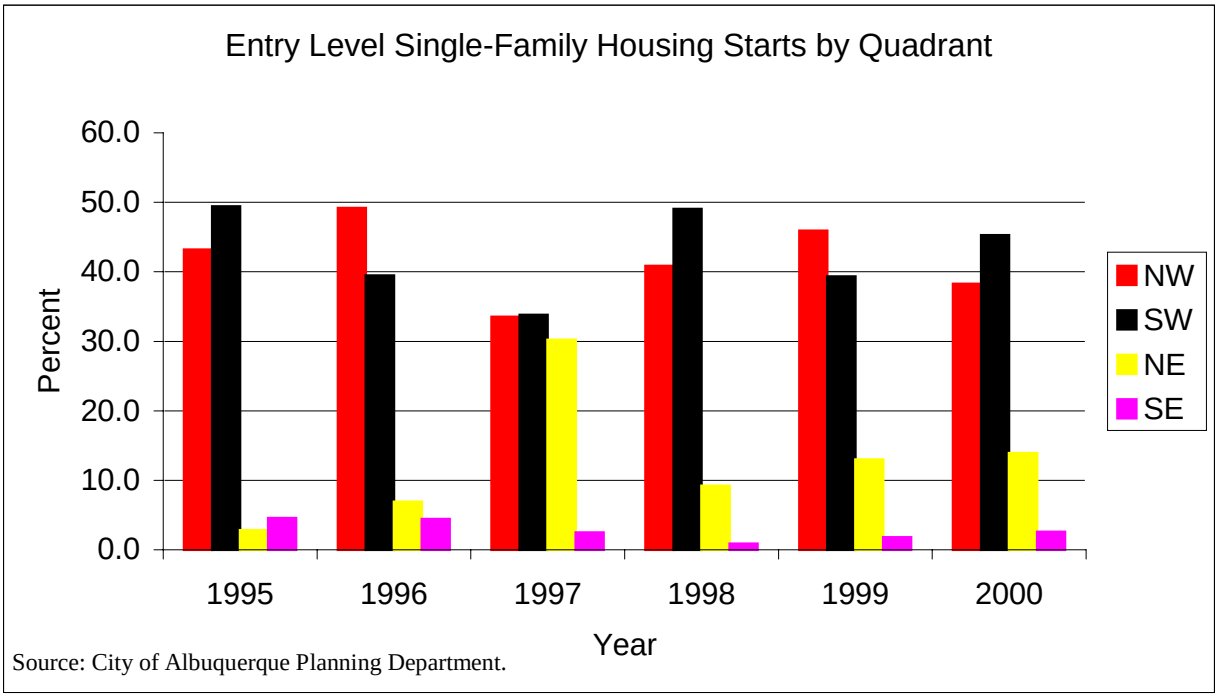
Figure 3



Source: City of Albuquerque Planning Department.

Entry-level housing starts have been predominantly concentrated on the west side of the City. Between 1995 and 2000 more than 86 percent of all entry-level housing starts occurred on the west side.[7] Figure 4 below shows that the northwest and southwest quadrants accounted for more than 92 percent of the starts in 1995, fell to 67 percent in 1997, rose to almost 90 percent in 1998 and remained near the 85 percent level in the following two years.

Figure 4



Increasing multi-family vacancy rates caused, likely and in large part, by the ability of homebuilders to attract multi-family housing tenants triggered the decline in multi-family housing permits.[8] More specifically, the first-time homebuyer programs offered by builders were too good for these tenants to pass up.[9] Census data shows that in 1990, 52.8 percent of the total housing units in Albuquerque were owner-occupied and by 2000, it increased to 55.7 percent. Over this same time period, single-family housing vacancy rates have not changed significantly. Census data shows that 1.8 percent of single-family units were vacant in 1990 and by 2000, it increased slightly to 1.9 percent.

The number of existing homes on the market varied from a low of 1,670 units in 1995 to a high of 2,878 units in 1998. The number of existing homes that sold and closed ranged from a low of 5,126 units in 1997 to a high of 5,638 units in 1996. The mean (average) selling price (in real 2000 $s) of existing homes ranged from a low of $150,259 in 2000 to a high of $155,016 in 1999. The median selling price (in real 2000 $s) ranged from a low of $126,900 in 2000 to a

high of $134,112 in 1997. Multi-family vacancy rates increased from a low of 5.9 percent in 1995 to a high of 10.8 percent in 1998. By 2000, it fell to 7.5 percent. In spite of the high vacancy rates observed during most of this period, multi-family rental rates increased from 68 cents per square foot in 1995 to 73 cents per square foot a year later. Since then it has remained steady at about 71-72 cents per square foot.

Table 1
Albuquerque New, Resale and Multi-Family Housing Market Statistics

Year	Active Listings[10]	Existing Homes Sold and Closed	Mean Sale Price (Median Price) in real 2000 $s	SF Units Permitted	New SF Units Sold and Closed	MF Units Permitted (Completed)	MF Vacancy Rate (percent)	MF Rental Rates ($/sqft)
1995	1,670	5,479	151,132 (133,330)	2,674	1,960	1,801 (1,337)	5.9	0.68
1996	2,111	5,638	151,210 (132,311)	2,655	2,052	1,013 (1,904)	7.5	0.73
1997	2,358	5,126	153,907 (134,112)	2,529	1,854	1,601 (1,497)	9.2	0.72
1998	2,878	5,461	154,982 (133,006)	3,449	2,249	367 (796)	10.8	0.71
1999	2,372	5,406	155,016 (132,819)	3,601	2,818	390 (1,130)	10.4	0.72
2000	2,596	5,415	150,259 (126,900)	3,370	2,578	210 (176)	7.5	0.72

Sources: Apartment Association of New Mexico: Multi-family units constructed, Multi-family vacancy and Multi-family rental rates. Vacancy rates are determined through sampling and are based on quarterly data. Albuquerque Metropolitan Board of Realtors: active listings, sold and closed, and price data are for areas 1 through 11 (see Appendix C), include class I (single family detached) and class II (condo, town home, etc.) homes and are extracted from the Southwest Multiple Listing Service computer system.[11] City of Albuquerque Planning Department: single family and multi family units permitted by the City. Ussery Real Estate Appraisal: New single-family units sold and closed.[12]

Population and Housing Trends in Older Neighborhoods

The older neighborhoods of the City, as defined in endnote 1, saw a sharp decline in population between 1995 and 1996, a leveling off between 1997 and 1998, and a slight decline thereafter (see Table 2 on page 6). The University of New Mexico Bureau of Business and Economic

Research (BBER) attributes most of this loss to a net-out migration of residents to areas in the southwest quadrant of Albuquerque; quote, "*Older apartments are heavily concentrated in PIA 5 and this PIA saw an increase in apartment vacancies in the 1995-1998 period. Local homebuilders targeted the entry-level housing market in this time period and attracted many first time homebuyers away from apartment living arrangements. Net migration was heavily negative in the 1995-1998 time period, as PIA 5 lost residents to PIA 9 and PIA 12 where much of the affordable, entry-level housing was built.*"[13] (See Appendix B for map illustrating Planning Information Areas (PIAs) 5, 9, and 12). This explanation seems highly plausible, but cannot be proven with certainty because of the unavailability of data showing individual migration patterns.

Table 2
Older Neighborhood Housing Market Statistics

Year	Population	Active Listings[10]	Existing Homes Sold and Closed	Mean Sale Price (Median Price) in real 2000 $s	Mean Length on Market (Median Length)	MF Vacancy Rate (percent)
1995	139,251	203	1,142	127,028 (119,884)	72 days (58 days)	4.2
1996	130,998	337	1,025	126,886 (120,616)	82 days (65 days)	6.7
1997	131,195	414	1,084	128,844 (119,091)	80 days (66 days)	9.7
1998	131,257	540	1,171	128,784 (120,434)	97 days (75 days)	10.5
1999	130,122	490	1,093	129,691 (119,795)	92 days (77 days)	10.2
2000	129,443	578	1,191	123,310 (116,000)	91 days (75 days)	8.2

Sources: Urban Growth Projections, 1999-2010: population figures for years 1995 through 1998 are estimates. Later years are projections. Albuquerque Metropolitan Board of Realtors: active listings, sold and closed, length on market, and sale price data are for market areas 4, 7, and 8, include class I and II homes and are extracted from the Southwest Multiple Listing Service computer system. Apartment Association of New Mexico: Multi-family vacancy rates are for zip codes 87102, 87106, 87108, and 87110 (See Appendix D for boundaries). The multi-family vacancy rate for 1995 excludes first quarter data.

The number of existing homes for sale was almost three times greater in 2000 than it was in 1995, and the number of homes that sold and closed did not change significantly between 1995 and 2000. During this period, the mean sale price (in real 2000 $s) of existing homes ranged

between $126,886 and $129,691 with the exception of when the mean price fell to $123,310 in 2000. The mean length of time these homes were on the market ranged from a low of about 10 weeks in 1995 to a high of about 14 weeks in 1998.

Between 1995 and 2000, the number of single-family and multi-family housing permits issued in the older neighborhoods represented a tiny fraction of total permits issued. Multi-family vacancy rates rose from 6.7 percent in 1996 to 10.5 percent within two years, but had come down to 8.2 percent in 2000. Multi-family rental rates did not vary much, ranging from 0.71 to 0.72 cents per square foot.

Analysis Results

The above average population growth during the early 1990s resulted in increasing housing demand and it wasn't until the mid 1990s that the industry responded to this demand. As illustrated in Figure 5 on page 8, housing demand increased from 6,940 units in 1995 to 8,522 units in 1996, dropped to 7,320 units in 1997 and increased in the following three years, peaking at 9,993 units in 2000. Housing supply, on the other hand, increased every year between 1995 and 1998, reaching a peak of 13,048 units in 1998. It declined slightly in 1999 and fell further in 2000 to 10,731 units.

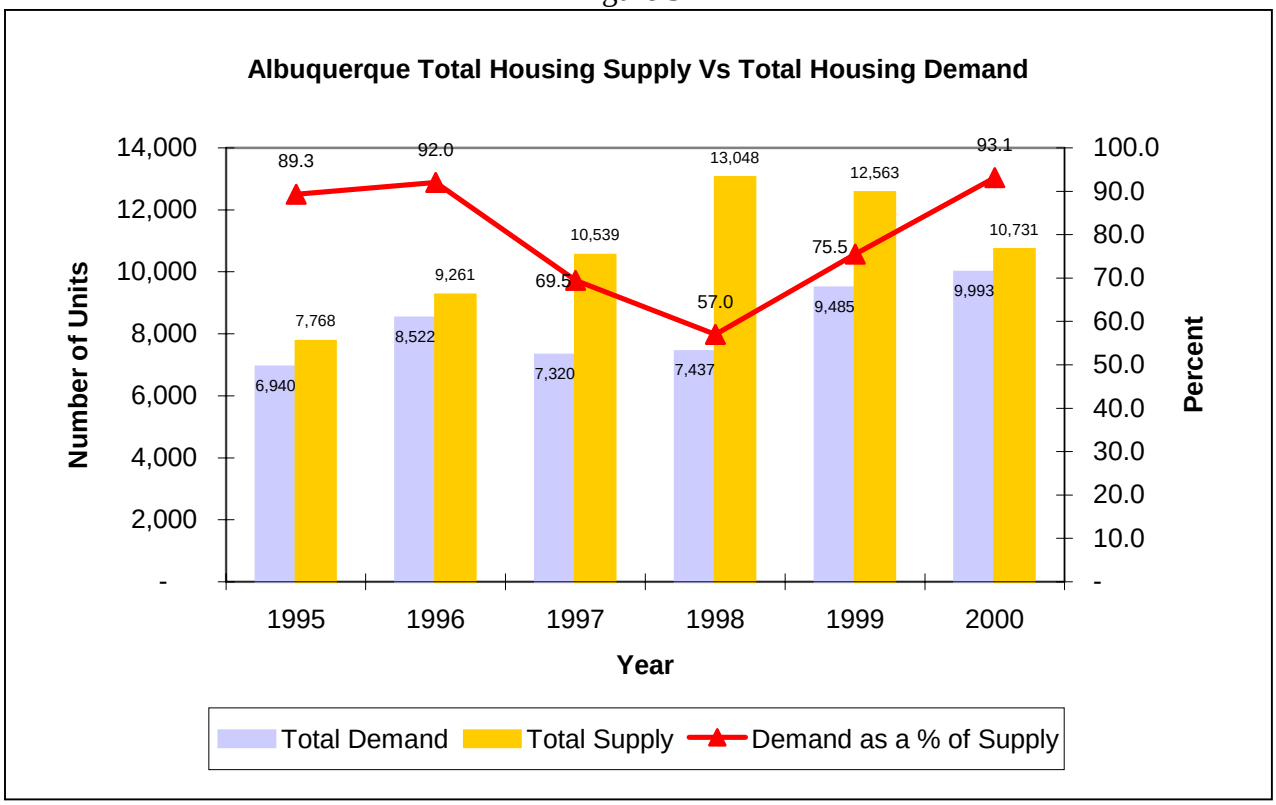
The ratio of housing demand to housing supply rose from just over 89 percent in 1995 to more than 92 percent in 1996. In 1997 it dropped substantially to under 70 percent and by 1998, it bottomed out at 57 percent. Over the next two years, the ratio increased considerably reaching 93.1 percent by 2000, representing a six-year high.

To help explain these trends, housing supply and demand must be examined in more detail (See Appendix A for housing supply and demand equations). Rather than examining the type of units that are in demand, the focus should be on the type of individuals that are creating the demand. Albuquerque total housing demand is generated by residents relocating within Albuquerque[14], by the young adult-aged individuals who are leaving their parents home to form their own, and finally, by new residents relocating to Albuquerque. The demand that the first two groups generate cannot be estimated separately and are thus aggregated (see Figure 6 on page 9).

As illustrated in Figure 6, the demand generated as a result of individuals migrating to Albuquerque had remained relatively steady throughout the second half of the 1990s.[15] Resident relocation within the City and the young adult-aged individuals seeking home ownership generated most of the demand and wielded the greatest impact on demand. These particular

groups demanded a greater number of housing units in 1996 than in the previous year. For the next two years the demand was well below the 1996 level, but rebounded in 1999 and 2000.

Figure 5



The surge in housing supply witnessed from 1995 to 1998 was primarily attributed to a large increase in the number of multi-family units available for rent (see Figure 7 on page 9). During this period, more than 1,000 additional units were made available each year. To a lesser extent, supply increased because additional existing single-family homes were placed on the market.

New single-family housing construction did not have much of an impact in increasing the supply except in 1998. In 1999, there were fewer existing homes and fewer multi-family rentals on the market. By 2000, there were 1,825 fewer multi-family rentals on the market.

Referring back to Figure 5, marginal housing demand exceeded marginal housing supply from 1995 to 1996 and from 1998 to 2000; from 1996 to 1998, marginal supply exceeded marginal demand.[16] Given the fact that resident relocation within Albuquerque is assumed to offset the supply and demand generated (for explanation, see endnote 14) and that in-migration remained relatively steady, the trend observed from 1996 to 1998 suggests that either there was an out-

migration of residents[17] and/or there was reduced demand for housing by the young adult-aged individuals.[18]

Figure 6

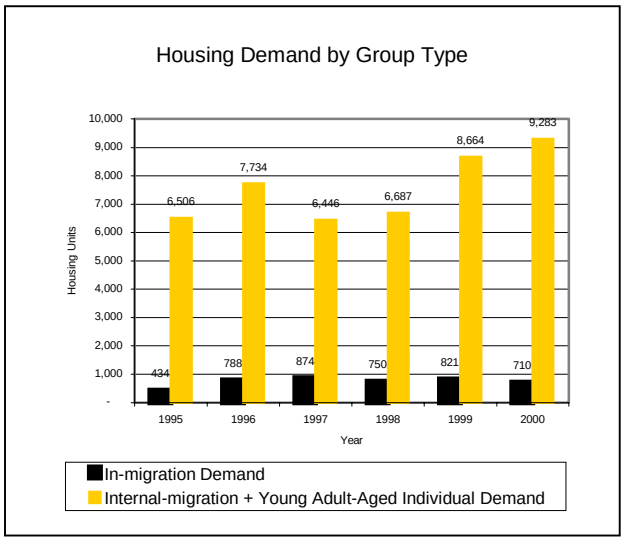
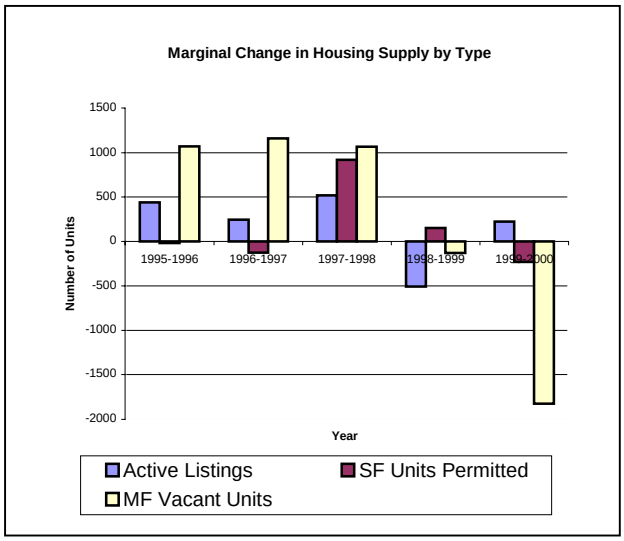


Figure 7



From 1996 to 1998, the large increase in multi-family vacancies and the increase in the number of existing homes for sale indicate that an exodus might have occurred. This might be misleading however, because the increase in multi-family vacancies was largely due to the flood of new multi-family units coming on-line. Therefore, the conclusion that can be drawn is that while there may have been an exodus to some extent, it was not significant. The reduced demand by the young adult-aged individuals is the likely cause for marginal housing supply to exceed marginal housing demand. From 1998 to 2000 the surge in demand, likely caused by a new wave of young adult-aged individuals buying homes, outpaced the number of additional housing units placed on the market; this led to the observed reduction in housing availability.

During the second half of the 1990s, population decreased in the older neighborhoods as evidenced by the increase in multi-family vacancy rates and in the increase in the number of homes on the active listings. While a small portion of the increase in housing supply can be attributed to new units coming on-line and to additional existing homes put up for sale, a much larger portion is attributed to multi-family vacancies. Also during this period, the number of homes that sold and closed remained relatively steady, but the length of time it took to sell a home increased about 1 to 2 weeks, on average. The average price of homes remained relatively steady, except when it declined in 2000. Interestingly, these trends witnessed in the older neighborhoods were also seen throughout the City as a whole.

Does this population decrease mean that residents migrated to newer neighborhoods? As mentioned earlier, without specific migration data it cannot be determined conclusively. While it is possible that a small percentage of the out-migrants were home owners moving to newer neighborhoods (it is also possible that these individuals were unable to sell their existing homes resulting in the observed increase in the number of existing homes on the market), **the decline in population of older neighborhoods was largely due to an out-migration of multi-family tenants who likely moved to newer neighborhoods**. Strong arguments can be made to support the notion that these tenants acted sensibly by migrating to areas that provided for entry-level and affordable housing for purchase and it so happened that those areas tended to be new. Interestingly, multi-family vacancy rates were not only increasing in older neighborhoods, but also were increasing throughout the City. This increasing vacancy suggests that new housing developments attracted multi-family housing tenants from all areas of the city.

As for older neighborhoods showing signs of deterioration, using sale price and multi-family rental rates as indicators, the evidence does not substantiate this to have occurred. While there may have been isolated pockets of disrepair,[19] overall values of homes in these neighborhoods were not depreciating but were actually holding steady.

Summary

Albuquerque population grew at an annual rate of about 1.7 percent in the first half of the 1990s, but slowed down to about 1.3 percent in the second half. The deceleration was likely caused by a slow down in employment growth. Between 1995 and 2000, Albuquerque had seen a surge in entry-level housing starts. Mortgage interest rates remained below 8 percent and homebuilders offered all sorts of incentives to attract first-time homebuyers. Homebuilders primarily targeted multi-family tenants; one could travel all around the City and see signs that read 'Why Rent?' Most of the entry-level housing starts were constructed on the west side of the City because land was more abundant and less expensive than in eastern parts of the City.

The conclusions that are drawn from this research are as follows:

1) **The overall trend from 1995 to 2000 shows that marginal housing demand exceeded marginal housing supply**. While total housing stock continued to increase, the rate of increase was outpaced likely by the large increase in the number of young adult-aged individuals buying homes.

2) During the second half of the 1990s, multi-family vacancy rates increased throughout the City. The older neighborhoods also saw increasing multi-family vacancy rates and because they are highly concentrated with multi-family housing units, the result was an observed decline in overall resident population. **The population loss was likely the result of multi-family housing tenants moving to newer neighborhoods and buying entry-level, affordable housing**. It is also possible that some homeowners made the move for similar reasons, but it was not as prevalent. While there may have been small and isolated pockets of areas that were on the decline, there were no indications of large-scale deterioration. Even though both the number of homes for sale and the amount of time it took to sell a home increased, housing price data suggests that these neighborhoods were maintaining their integrity and value.

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Appendix A

Housing Supply and Demand Equations

The number of housing units available on the market is a proxy for housing supply. The number of housing units sold and rented is a proxy for housing demand. Housing supply and demand[20] can thus be represented by the following equations:

$$H_S = NSFP + AL + EMFR + NMFR$$

where:

H_S = *Housing supply*
NSFP = New single-family units permitted[21]
AL = Existing single-family units for sale (active listings)
EMFR = Existing multi-family units for rent
NMFR = New multi-family units for rent

$$H_D = NSFSC + ESFSC + EMFRD + NMFRD$$

where:

H_D = *Housing demand*
NSFSC = New single-family units sold and closed[21]
ESFSC = Existing single-family units sold and closed
EMFRD = Existing multi-family housing units rented
NMFRD = New multi-family housing units rented

The number of new single-family housing units permitted and the number of existing homes that were for sale are reported in Table 1 on page 5. The number of existing multi-family housing units that were for rent is the mathematical product of multi-family housing stock and vacancy rate. The number of new single-family and existing single-family housing units that sold and closed is also reported in Table 1. The number of new and existing multi-family housing units that were rented (a demand component) are aggregated for estimation purposes because they could not be estimated separately; the result is the following equation:

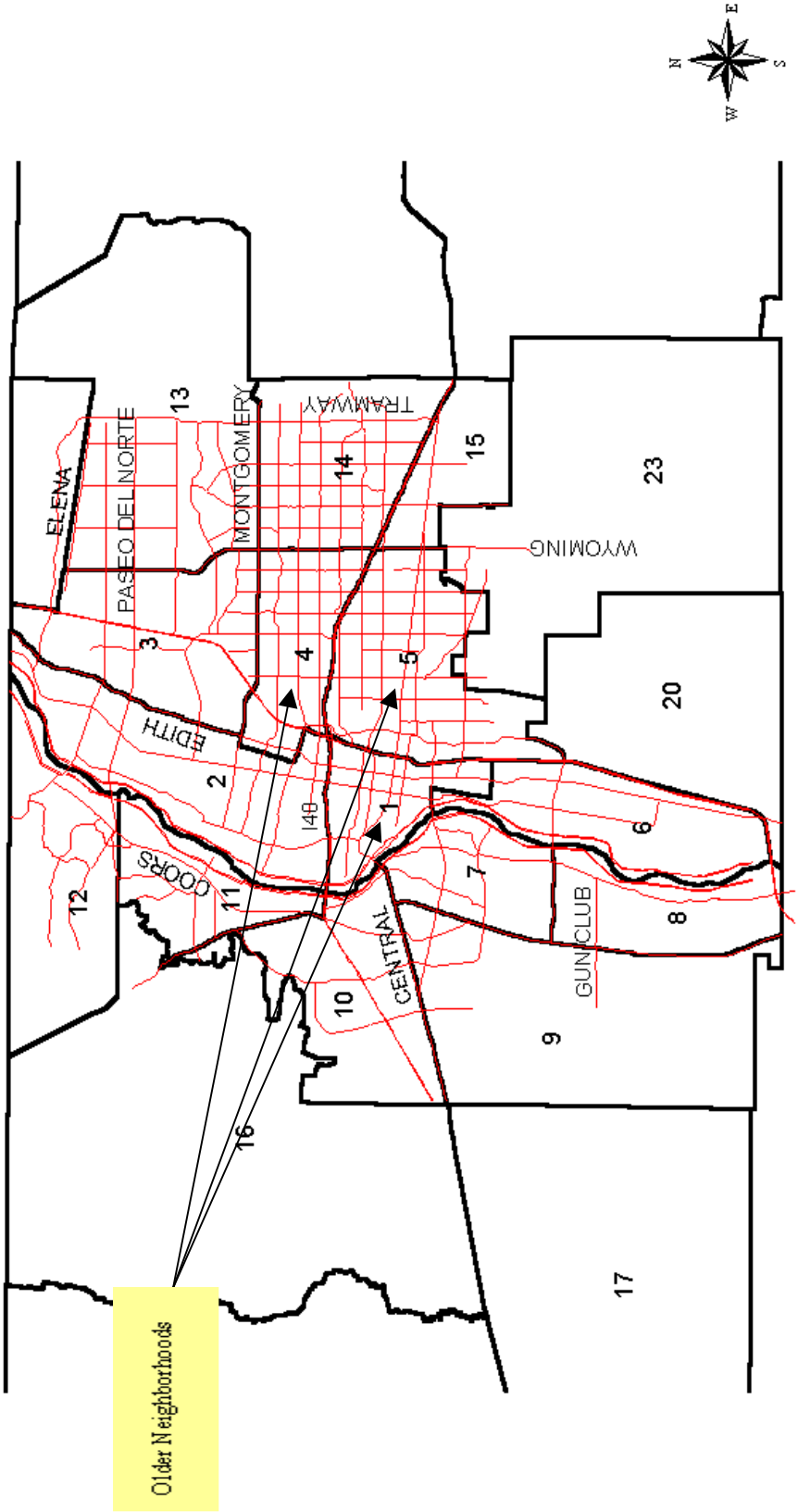
$$MFUR = \sum_{t=1995}^{t=2000} \left[\left(HS_t * OR_t \right) - \left(HS_{t-1} * OR_{t-1} \right) \right]$$

where:

MFUR = Multi-family housing units rented
MFHS = Multi-family housing stock
MFOR = Multi-family occupancy rate (%)
t = year

Appendix B

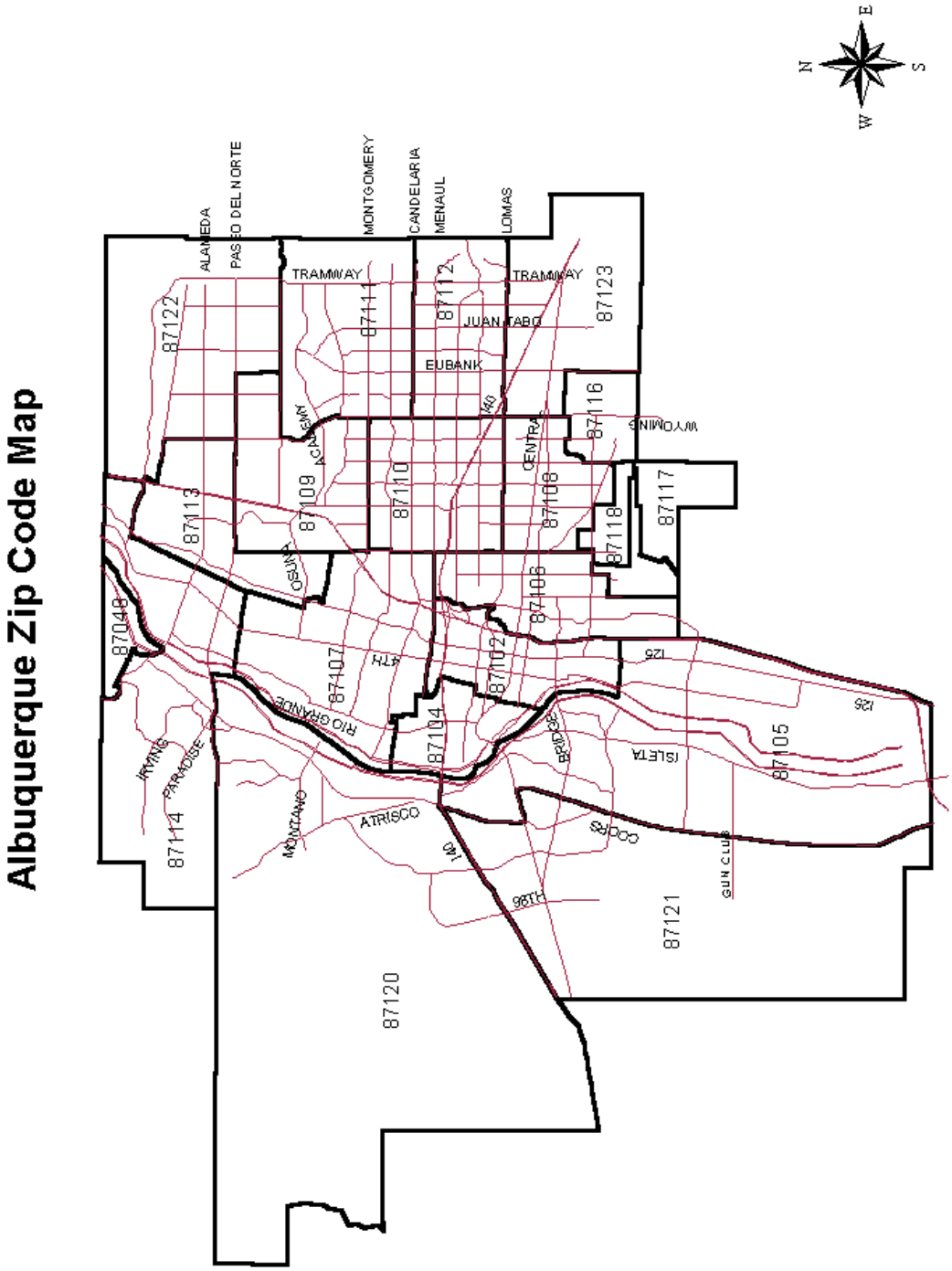
Planning Information Area (PIA) Map



Appendix C

Southwest Multiple Listing Service Area Map

Appendix D


Albuquerque Zip Code Map
N
E
S
W
ALAMEDA
PASEO DEL NORTE
MONTGOMERY
CANDELARIA
MENAUL
LOMAS
TRAMWAY
JUAN TABO
EUBANK
CENTRAL
WYOMING
ACADEMY
OSUNA
RIO GRANDE
ATRISCO
MONTANO
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PARADISE
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Endnotes

[1] Defined as Planning Information Areas 1, 4, and 5, which had seen approximately 100 or fewer residential units permitted per year between 1995 and 2000. For a description of these areas, see 'Urban Growth Projections, 1999-2010' which is available through the City of Albuquerque Planning Department. For a map illustrating the boundaries of these areas, see Appendix B.

[2] Expansive and extensive development was taking place to the west of the City mainly because land was less expensive, far more abundant, and available in larger parcels than to the east.

[3] Births minus deaths.

[4] In an apparent contradiction, migration patterns reported by the Internal Revenue Service (IRS) reveal that Bernalillo County had lost residents over most of this period. Between 1995 and 1998, Bernalillo County saw a net loss of more than 16,000 residents. Years 1999 and 2000 are not yet available. The IRS tracks these patterns through the number of individual tax returns and the number of dependents reported on those returns by county. The flaw with analyzing migratory behavior using tax return data is that it is not accounting for those individuals who either chose not to file or were not required to file a return.

[5] Excludes mobile homes.

[6] In this report, entry-level housing is taken to mean housing that, in 2000 dollars (adjusted to the CPI-U), is valued at under $100,000. City of Albuquerque building permit data is used to derive the number of single-family units valued at under this level even though permit figures are for construction value only. Construction value is assumed to be approximately 70 percent of total sale price; thus building permits with a value of under $70,000 are considered entry-level.

[7] West side is referred to the City incorporated areas west of the river. The demarcation line for east and west is the railroad tracts that run north and south and are east of the river. The percentages reported for the west side are overvalued because it includes those areas between the river and the railroad tracts. The overvaluation is not likely to be large because very little new development had taken place in these areas.

[8] To a lesser extent vacancy rates increased because new multi-family units continued to come on-line. In 1995 an additional 1,337 new units were completed and at the same time the market saw 1,836 units added to the total available inventory. In 1996 it was 1,904 newly completed units and 1,071 units added to the inventory. In 1997 it was 1,497 and 1,157, respectively. In 1998 it was 796 and 1,069, respectively. In 1999 it was 1,130 new units and 131 fewer units available on inventory. Finally, in 2000 it was 176 new units and 1,825 fewer units available.

[9] The New Mexico Mortgage Finance Authority (NMMFA) is one such group that offers programs to first-time homebuyers. The NMMFA issues tax-exempt mortgage revenue bonds and the proceeds it receives from the bond sales are used to fund below-market interest rate loan programs for homebuyers.

[10] Reporting active listings for a given year is problematic because it is constantly changing. At any given time, the number can vary substantially. Data points spread out over a year would be preferable, especially if it is daily information because the more data points that are available, the more representative the information is. Because such information is unavailable, figures for specific dates are reported. The figures for years 1995 and 1996 are for December 27 of the respective year. The figure for 1997 is for January 5, 1998. Because only class I figures are available for 1998 through 2000, class II figures are estimated. Class II homes represent 11.1 percent, 11.9 percent, and 10.7 percent of homes that sold and closed in the Greater Albuquerque area for years 1998, 1999, and 2000, respectively. The same percentages are utilized for estimating Class II homes that sold and closed in the City of Albuquerque. The calculation is as follows: $x = \frac{py}{1-p}$ where: x = number of class II homes, y = number of class I homes and p = percentage of class II homes to total homes. The figures for 1998, 1999, and 2000 are for July 10,

1998, January 10, 2000, and July 10, 2000, respectively. These figures also include some new homes that were for sale; according to the Albuquerque Metropolitan Board of Realtors, approximately 7.5 percent of active listings are new homes.

[11] These areas do not correspond exactly to that of the City's but is nonetheless a close approximation.

[12] Figures for years 1998 through 2000 are actual except that they are underreported because they denote new homes that were sold and closed by the top 15 homebuilders, representing approximately 70% of the market. Prior years are estimates that are calculated by taking the weighted average of new units that sold and closed to new units permitted for years 1998 through 2000 and multiplying the resulting ratio by the number of new units that were permitted for each respective year. In statistics, this methodology is referred to as data mining; nevertheless, the bias generated is assumed to be small.

[13] See Page 101 of 'Urban Growth Projections, 1999-2010.'

[14] The difference between housing supply and housing demand produced by migration within Albuquerque is assumed to be zero. For every house an individual purchases or for every apartment they move to there's an equal number for sale or for rent. This equilibrium ceases to exist if they purchase or rent more than one place, but this is assumed to be not prevalent.

[15] Demand estimates due to in-migration are derived as follows: in-migration population divided by 2.40 (Albuquerque average household size).

[16] Marginal housing demand and marginal housing supply can be defined as the increase in housing demand and housing supply that results from buying or selling an additional housing unit. The relationship between marginal housing demand and marginal housing supply can thus be represented by the following equations:

$\sum_{1995}^{2000}(D_t - D_{t-1}) \gtreqless \sum_{1995}^{2000}(S_t - S_{t-1})$ where: D = demand, S = supply, and t = year.

[17] It is possible to see an exodus of resident population and at the same time see an overall population increase. This can occur when the number of births minus the number of deaths exceeds the number of residents leaving the City.

[18] The number of young adult-aged individuals may have declined and/or the willingness of these individuals to choose home ownership may have been postponed.

[19] Such pockets were not restricted to older neighborhoods only, but could have been found throughout different areas of the City.

[20] On the demand side additional components should be included; that is, the number of single-family units that were available for lease and the number of homes that were for sale by owner. On the supply side, it is the number of single-family units that were leased and the number of homes that were sold by owner. These are excluded because of the lack of information.

[21] For simplicity, these are assumed to have been available and sold the year they were permitted.