CHAPTER 3.0

PIA POPULATION ESTIMATES AND PROJECTIONS

Introduction

This chapter provides population estimates from 1995 to 1998 and population projections from 1999 to 2010 for the study area, which includes most of Bernalillo County and Rio Rancho and Corrales in Sandoval County, by Planning Information Area (PIA). Estimates and projections are also calculated for the Albuquerque area, which includes all of Bernalillo County except for the Indian Reservations of Canoncito, Isleta, Laguna and Sandia. This report is an update to the *Urban Growth Projections 1995-2005*, which included population estimates for 1990 to 1995 and projections for 1995 to 2005. All population numbers are calibrated as of July 1 of each estimation and projection year. The 1990 Census population counts serve as the baseline population for succeeding estimates and are included in this chapter.

This chapter is divided into two sections: population estimates and population projections. First, the methodology used to calculate the estimates is presented, followed by an in depth explanation of the estimates for each PIA and the major components of population change. Next, the methodology used for population projections in the Albuquerque MSA, counties, and PIAs is provided. The projections are then presented along with a detailed discussion regarding major demographic trends expected within the study area.

The baseline population data used in this chapter were taken from the 1990 Census Summary Tape File 1A. Birth and death data used in disaggregating the components of population change, detailed in the first section, were provided by the Vital Statistics Section of the Public Health Division of the New Mexico State Department of Health.

Population Estimation Methodology

To estimate the midyear population from 1995 to 1998, a housing unit method was used. The formula is as follows:

$P_t = (HH_t * O_t) * PPH_t$
where P_t is the total population at time t,
HH_t is the total housing units at time t,
O_t is the proportion of occupied housing units at time t, and
PPH_t is the average number of persons per household at time t.

The total number of housing units is equal to the housing stock enumerated in the 1990 Census plus the number of new residential units. For purposes of this report, the housing units were disaggregated by type: single, multifamily, mobile home or trailer. Different occupancy rates and average household sizes are associated with different housing unit types. Apartment vacancy rate data from the Apartment Association of New Mexico was used to update apartment vacancy rates since 1990. The population estimates from each of the housing types were then aggregated in order to come up with the total population for the PIA.

The City of Albuquerque, the City of Rio Rancho, the Village of Corrales, and Bernalillo County provided the data on single and multifamily housing permits[1]. These permits were tabulated for each quarter. Mobile home statistics for 1985, 1988, 1990, and 1995 were provided by the Middle Rio Grande Council of Governments (MRGCOG), while for 1998 mobile homes data were provided by the Bernalillo and Sandoval county assessors.

In using housing permit data, a lag time was built into the equation to allow for delays in construction and occupancy. For the purpose of this study, single family housing units were lagged three months, while multifamily housing units were delayed six months from the time the permit was obtained. For example, permits for single family units obtained from January 1990 through March 1990 were added to the housing units enumerated by 1990 Census to arrive at the July 1,

1990 estimate of PIA single family homes. The same process was repeated for multi-family, except the lag time was six months.

Mobile homes present special difficulties for population estimation. Data on mobile home occupancy rates are not collected. Mobile homes by their nature may be moved within the region, and mobile homes also depreciate at a faster rate than permanent housing. And even consistent information on new mobile home units is also difficult to obtain. Therefore, a time-series regression technique was performed on mobile home data provided by the MRGCOG and county assessor for 1985, 1990, 1995 to estimate the number of people living in mobile homes as of July 1, 2000. Then, using a ratio-based technique, the total estimated population living in mobile homes in 2000 was disaggregated according to the share of each PIA in the study area. It was assumed that all mobile homes are occupied at the time of data collection or have the same occupancy rate as reported in the latest census. Table 3.1 presents the data on occupancy rates.

Kirtland AFB (PIA 23) has recently been undergoing significant housing changes, which were factored into calculating population estimates. There were 211 new housing units built on the base from 1995 to 1998. However, due to an aging housing stock many housing units were demolished and not replaced so that the estimated housing stock in 1998 is 2,085, down from 2,372 in 1990. Plans to privatize base housing in the first decade of the new century indicate that 1,349 older units will be demolished, the 211 new units will be maintained, and 953 additional new units will be constructed, for a total expected housing stock of 1,164 in 2010. Because there will be fewer housing units available, more people will need to find housing off base, thus resulting in a population loss in PIA 23.

The average number of persons per household (PPH) for each PIA is available from both the 1980 and 1990 Census. (Table 3.1) The average household size was adjusted according to the rate of

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[1] See Chapter 5.0 for a more detailed discussion of the housing permit data.

TABLE 3.1

Census 1990 Occupancy Rate by Type and Census 1980 and 1990
Average Household Size by PIA

PIA Number	Census 1990			Persons Per Household Census	
	Single Family	Multi-Family	All Types	1980	1990
1	90.0	83.4	87.5	2.67	2.42
2	94.6	87.0	93.7	2.98	2.72
3	96.9	89.4	93.2	2.68	2.35
4	97.7	86.1	93.3	2.48	2.29
5	96.1	85.9	90.9	2.33	2.15
6	94.3	77.8	94.5	3.46	3.42
7	91.4	78.6	89.9	3.28	3.08
8	95.5	88.1	95.4	3.60	3.27
9	93.9	84.5	93.6	3.62	3.44
10	94.8	79.1	91.0	3.27	2.85
11	95.6	81.7	94.0	3.04	2.82
12	96.6	94.5	96.0	3.13	2.58
13	96.1	79.0	91.9	3.16	2.57
14	97.5	87.0	94.6	2.90	2.55
15	96.3	81.7	89.5	2.48	2.38
16/21	83.3	*	83.0	-	4.00
17	*	*	92.6	0.00	0.00
18	92.9	76.3	86.0	2.94	2.69
19	86.0	100.0	86.0	2.86	2.77
20	-	-	-	-	-
23	94.7	93.8	94.7	4.04	3.40
24	95.1	87.7	94.5	2.74	2.78
25	92.8	87.3	91.5	2.92	2.70
Albuquerque Area **	**95.4**	**85.4**	**92.3**	**2.78**	**2.54**
Study Area	**95.4**	**85.5**	**92.5**	**2.77**	**2.56**

- No population.
* No housing units of this type
** Bernalillo County less residents on Native American Reservations.
Sources: 1980,1990 U.S. Bureau of the Census of Population and Housing.

change calculated between 1980 and 1990. Thus, the 1990 PPH for each PIA was projected to the

year 2000 and 2010, and the in-between years were interpolated. There was a need to exercise some

judgment in these calculations, particularly in PIAs where the PPH reached unacceptable limits,

below one person per household or over four persons per household. After the total was estimated,

population changes between the periods were then calculated and disaggregated into components--

natural increase and migration. The Population Balancing Equation[2] makes this disaggregation

possible.

The following is the basic formula:

$P_{t+1} = P_t + NI_{t, t+1} + NM_{t, t+1}$
where P_{t+1} is the population at time $t + 1$,
P_t is the (base) population at time t,
$NI_{t, t+1}$ is the natural increase or the difference between births
    and deaths between time t and t+1;
$NM_{t, t+1}$ is the net migration, the difference between in- and
    out-migration, between time t and t+1.

Natural increase is the difference between births and deaths during the period. Natural increase

plus the base population (P_t) represents the expected population in the absence of migration.

Net migration is a parallel measure to natural increase. Theoretically, it is obtained by

subtracting the number of people who left an area from those who moved into an area. However in

the absence of data on the number of in- and out-migrants, net migration is calculated as the residual

of total change. In other words, net migration is that component of change that is not accounted for

by natural increase. By transforming the above equation, net migration is estimated as follows:

$NM_{t, t+1} = (P_{t+1} - P_t) - NI_{t, t+1}$.

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[2] See Henry S. Shryock and Jocob S. Siegel, 1971, The Methods and Materials of Demography, Volume 2 (Washington, DC: U.S. Government Printing Office, 1971).

The disaggregation of PIA population change into these two components is possible because the Bureau of Business and Economic Research (BBER) was given access to individual vital statistics records.[3] These records include demographic information such as age, and date of occurrence of the event and the deceased's or the child's mother's usual place of residence. The residence variable provides a detailed street address making the allocation of the vital events to the appropriate PIA possible.

Population Estimates

Table 3.2 presents population estimates for the total study area, for the Albuquerque area, and for the individual PIAs for the years 1995 through 1998. The 1990 Census population for each PIA is also provided as a benchmark for calculating rates of growth. Growth rates are shown for the 1990-1998 time period as well as for the 1990-1995 and 1995-1998 time periods so that population growth trends during the decade can be examined.

Total study area population reached almost 600,000 by 1998, having increased by 84,135 from the 1990 Census total of 515,143. This represents a 1.84 percent compound average annual rate of growth over the 1990-1998 time period. Population growth was stronger in the first half of the 1990s than in the later half due to different economic conditions. Population grew at a 1.98 percent annual rate between 1990 and 1995, but slowed to a 1.58 percent annual rate between 1995 and 1998. As discussed in Chapter 4.0, the Albuquerque region's economy boomed in the 1993-1995 time period, but has slowed significantly since 1995. A stronger economy caused an increase in net migration to the region, and a higher rate of population growth in the first half of the decade.

The Albuquerque area represents Bernalillo County less residents on Native American reservations such as Isleta and Sandia Pueblos. Compared to the total study area, the Albuquerque

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[3] Through a special agreement with the Public Health Division of the State Department of Health and Environment,

Table 3.2

April 1, 1990 (Census) and Population Estimates as of July 1, 1995-1998 and
Compound Annual Average Growth Rate Between Selected Time Periods

PIA Number	Census 4/1/1990*	Population Estimate as of July 1...				1990 - 98 Growth Rate	1990 - 95 Growth Rate	1995 - 98 Growth Rate
		1995	1996	1997	1998			
1	25,282	25,306	24,130	24,005	24,014	-0.62	0.02	-1.75
2	40,294	41,594	41,594	41,744	41,849	0.52	0.60	0.20
3	35,466	36,862	36,661	36,451	36,834	0.43	0.74	-0.03
4	34,865	34,824	34,330	34,236	34,154	-0.25	-0.02	-0.65
5	75,517	79,121	72,538	72,954	73,089	-0.39	0.89	-2.64
6	3,357	3,517	3,561	3,582	3,515	0.55	0.88	-0.02
7	25,261	26,756	25,446	25,409	25,501	0.14	1.10	-1.60
8	12,536	12,908	13,170	13,230	13,273	0.71	0.56	0.93
9	20,650	23,441	26,004	27,251	28,773	4.05	2.42	6.83
10	16,250	22,842	25,855	27,243	28,421	6.87	6.49	7.28
11	18,188	23,637	24,820	25,493	25,797	4.10	4.99	2.91
12	9,222	11,722	18,433	20,943	22,760	11.19	4.57	22.12
13	41,402	52,419	54,668	55,824	56,855	3.81	4.49	2.71
14	78,282	80,372	79,712	79,654	79,084	0.12	0.50	-0.54
15	19,564	21,611	21,680	21,652	21,896	1.34	1.90	0.44
16/21	103	103	92	92	94	-1.14	0.06	-3.05
17	8	11	11	11	11	3.98	6.81	0.00
18	7,096	8,741	9,526	9,461	9,656	3.73	3.97	3.32
19	5,384	6,689	7,499	7,683	7,701	4.25	4.13	4.70
20	-	-	-	-	-	-	-	-
23	8,589	8,798	7,242	6,811	6,802	-2.92	0.46	-8.58
24	32,910	44,198	48,811	50,382	52,201	5.59	5.62	5.55
25	4,917	6,002	6,797	6,879	6,998	4.36	3.8	5.12
Albuquerque Area**	**477,316**	**521,275**	**526,971**	**533,729**	**540,079**	**1.51**	**1.68**	**1.18**
Study Area	**515,143**	**571,474**	**582,580**	**590,990**	**599,278**	**1.84**	**1.98**	**1.58**

\- No Population.
*Growth rates based on 1990 BBER estimates rather than 1990 Census figures.
** Bernalillo County Less Residents On Native American Reservations.

area in Table 3.2 also excludes the fast growing PIA 24 (Rio Rancho) and PIA 25 (Corrales), located in Sandoval County. In 1998 Albuquerque area population reached 540,079, up from 477,316 in 1990. Population growth was slower in the Albuquerque area compared to the total study area. Between 1990 and 1998 Albuquerque area population increased at a 1.51 percent compound average annual rate compared to 1.84 percent for the total study area. The Albuquerque area also experienced the same slower rate of population growth after 1995, as did the total study area. Between 1990 and 1995 Albuquerque area population increased 1.68 percent on average each year, compared to only 1.18 percent between 1995 and 1998.

When examining the population estimates by PIA in Table 3.2, and the associated population growth rates, it is important to keep in mind the various factors that affect population growth in each PIA. Obviously, an individual PIA's population growth will be affected by the overall population growth trends within the study area. Demographic factors such as fertility and mortality rates will also play a role in the population growth of an individual PIA. For example, a PIA, which has attracted a younger population, will have higher fertility rates and lower mortality rates so that the natural increase in population (births minus deaths) will be high. The pace of residential development within a PIA also influences the intra-study area migration to an individual PIA. And the level of residential building will depend upon available land, the cost of land, adopted land use plans of governmental jurisdictions, the availability of infrastructure such as water, sewer, and roads, and the strategic plans of local builders.

PIA 14 has the largest population base within the study area with an estimated 79,084 persons in 1998. However, this represented an increase of only 802 persons since the 1990 Census and a below average 0.12 percent rate of growth during the 1990-1998 time period. PIA 14 is the heart of the traditional Northeast Heights of Albuquerque. It was largely developed in the 1960-

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BBER was allowed access to individual birth and death records for the Albuquerque Study Area.

1980 time period and has little available land for residential development. It has an older population with below average natural increase in population. During the 1990s net migration was negative from PIA 14, reflecting the decrease in average household size, as children aged and left the household.

PIA 5 is the next largest population center with 73,089 persons in 1998, which was a decrease of 2,428 persons from 75,517 in the 1990 Census. PIA 5 includes the University of New Mexico area, the Near Heights, and much of the Southeast Heights. Older apartments are heavily concentrated in PIA 5 (see Chapter 5.0), and this PIA saw an increase in apartment vacancies in the 1995-1998 time period. Local homebuilders targeted the entry-level single family 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 within the study area.

PIA 4, which includes other areas of the mature Northeast Heights of Albuquerque including Uptown, also experienced a small population loss between 1990 and 1998. Population in PIA 4 totaled 34,154 in 1998, down from 34,865 in 1990. PIA 4 had a below average natural increase in population, which did not offset a net out migration of people to other PIAs. PIA 4 also includes a concentration of apartments within the study area along its northern boundary of Montgomery Avenue.

PIA 15, which includes the East Central area and Four Hills, saw an increase in population between 1990 and 1998. Population increased at a 1.34 percent annual rate during this time, slightly below the average for the study area as a whole. In 1998 PIA 15 population totaled 21,896, a 2,332 increase from the 1990 Census count. PIA 15 had an average natural increase in population, and with a moderate level of new homebuilding, it is able to attract new residents so that net migration

was slightly positive. Much of this new homebuilding is in the area south of Central Avenue near the Eubank gate of Kirtland AFB.

PIAs 4, 5, 14, and 15 above make up most of the mature developed areas on Albuquerque's east side, including the university, Southeast Heights, Northeast Heights, and East Central areas of the city. In the 1990s these mature areas saw on balance no population growth. Only PIA 15 had any significant vacant land that was available for residential development. The population in these PIAs is older with below average natural increase because of lower fertility and higher mortality.

In contrast, PIA 13, which includes the Far Northeast Heights area of Albuquerque such as High Desert, Sandia Heights, Tanoan, and North Albuquerque Acres, saw above-average population growth in the 1990s. PIA 13's population increased from 41,402 in the 1990 Census to 56,855 in 1998, a 3.81 percent compound average annual rate of growth. PIA 13 does not have a particularly strong natural increase in its population change, but has experienced a large net migration of people, as much of the vacant land in this area has and will continue to be developed. Population growth was the strongest in the 1990-1995 time period, when population increased at a 4.5 percent annual rate. Growth slowed to a 2.7 percent pace in the 1995-1998 time period, reflecting the slower overall growth of the study area as well as a slowing in residential development, as this PIA's land has become more expensive. Also, the allowed density of development in PIA 13 is somewhat lower than in other parts of the study area.

PIA 3 lies in the area on either side of I-25 north of Montgomery Boulevard. In the 1990s this area developed primarily as an employment center[4] for the study area and has seen little large scale residential development. Population in 1990 totaled 35,466 and had increased slightly to 36,834 by 1998. The natural increase in population, although below average, offset a small out migration of

[4] See Chapter 4.0 for a discussion of employment within the study area.

population. Over the next ten years, however, PIA 3 will see a resurgence of population with the development of the Vista del Norte housing project on its western boundary.

The fastest growing population areas of the study area lie on the west side of the Rio Grande from the Southwest Mesa on the south to Rio Rancho and Corrales on the north. This west side area includes PIA 9 (Southwest Mesa), PIA 10(west I-40/Westland), PIA 11(Taylor Ranch), PIA 12 (Paradise Hills/Cottonwood/Ventana Ranch), PIA 24 (Rio Rancho), and PIA 25 (Corrales). During the 1990s 75.0 percent of the study area's total population increase occurred in these west side PIAs. In 1990 these six PIAs accounted for 20.0 percent of total study area population. By 1998, they accounted for 27.5 percent.

During the 1990s both single family and multifamily residential development has shifted to the study area's west side, principally because of the availability of large tracts of lower cost land with access to physical infrastructure. These residential trends are discussed more completely in Chapter 5.0. The surge of homebuilding on the west side led to an influx of new residents. However, these new residents were also younger so that natural increase is very high for these west side PIAs. The sharp increase in population reflects high fertility, low mortality, and high net migration for these PIAs.

PIA 12 had the largest percentage increase in population of any PIA in the 1990-1998 time period. Population increased from 9,222 in 1990 to 22,760 in 1998—an 11.2 percent compound annual rate of increase. Growth was particularly strong in the 1995-1998 time period with the development of Ventana Ranch and a surge of single family and multifamily housing in the Cottonwood Mall area. PIA 10 was the second fastest growing PIA during the 1990s with population increasing from 16,250 in 1990 to 28,421 in 1998 for a 6.87 percent compound average annual growth rate. PIA 10 straddles I-40 west of the downtown area and has excellent transportation access in an area being developed by the Westland Corporation.

PIA 24 (Rio Rancho) was the third fastest growing PIA during the 1990s, although more recently its pace of growth has slowed. In 1990 PIA 24 had 32,910 residents and its population increased 5.6 percent annually to 52,201 by 1998. Rio Rancho has seen explosive growth since 1980, and has been a major source of affordable, entry-level housing for residents of the study area. More recently, Rio Rancho has seen increased competition for this housing market in PIA 12 and PIA 9. Also, AMREP, which was the principal homebuilder in Rio Rancho, withdrew from further residential development in 1999 and will focus exclusively on land development in the future. As a result, homebuilding activity subsided in Rio Rancho in 1998 and 1999.

PIA 9 encompasses the Southwest Mesa of the study area and has seen explosive population growth since 1995. PIA 9 population increased from 20,650 in 1990 to 28,773 in 1998—a 4.05 percent compound average annual rate of growth. However, much of this growth came after 1995, with the 1995-1998 annual rate of population growth reaching 6.83 percent. Since 1995, local homebuilders have strategically targeted the entry-level home buyer in the study area. Within PIA 9 these homebuilders have found lower cost land with available physical infrastructure. PIA 11 saw population increase from 18,188 in 1990 to 25,797 in 1998 for a 4.1 percent compound average annual rate of growth. Population growth in PIA 11 has slowed somewhat since 1995. The Taylor Ranch area has been built out so that the pace of residential development has waned within this PIA. Finally, population in PIA 25 has increased from 4,917 in 1990 to 6,998 in 1998. PIA 25 encompasses Corrales, which has a great deal of low density development compared to other fast growing PIAs. Nevertheless, PIA 25 grew at a 4.36 percent average annual rate during the 1990-1998 time period.

PIAs 6, 7, and 8 comprise the South Valley of the study area. These three PIAs share common demographic characteristics including high natural population increase due to above average fertility rates as well as out-migration of population to other parts of the study area. Natural increase offsets

the loss of population due to the out-migration, but population growth is well below the study area average. PIA 6 had a total population of 3,357 in the 1990 Census, which increased slightly to 3,515 by 1998. PIA 7 has the largest concentration of population in the South Valley with a 1998 population estimated at 25,501. This is a small increase of 240 persons over the 1990 Census count. PIA 8 had an estimated 1998 population of 13,273, up from 12,536 in 1990.

PIA 2 includes the North Valley of the study area. It has a large population base with an estimated 41,849 persons in 1998. PIA 2 has experienced slow population growth since 1990, increasing at a 0.52 percent compound average annual rate from 40,294 in 1990. Residential development in PIA 2 is somewhat constrained by land use plans which keep densities low so as to preserve agricultural lands in the valley. Natural increase is below average reflecting low fertility and high mortality. However, the natural increase is enough to offset a slight net out-migration of population.

PIA 1 encompasses the downtown area of Albuquerque. In 1998 there were an estimated 24,014 persons living in PIA 1, which was a decrease from the 1990 population level of 25,282. There has been a large out-migration of population since 1995 with a low volume of new residential development and the loss of housing converted to office spaces. PIA 1 also has a small natural increase, reflecting an older population with low fertility and higher mortality.

PIA 23 (Kirtland AFB) has seen a recent decline in population because of the demolition of military housing. While there has been new housing built to replace demolished units, overall the housing stock fell from 2,372 in 1990 to an estimated 2,085 in 1998. While the military population is young and has higher fertility and lower mortality, the loss of housing stock has led to a decrease in population from 8,589 in 1990 to an estimated 6,802 in 1998.

Finally, PIA 18 and PIA 19 define the East Mountain area of the study area. Population growth in these two PIAs has been above average due to sustained residential development and large natural

increase of a younger population. PIA 18, which is north of I-40, had an estimated population of 9,656 in 1998, up from 7,096 in the 1990 Census. PIA 19, which lies south of I-40, had an estimated population of 7,701 in 1998, up from 5,384 in 1990. PIA 18 grew at a compound annual average rate of 3.73 percent between 1990 and 1998, while PIA 19 increased 4.25 percent in the same time period.

Components of Population Change

As discussed above, population change for a region can be broken down into natural increase (births minus deaths) and net migration. Table 3.3 presents these components of population change for the study area, the Albuquerque area, and the individual PIAs for the 1990-1998 time period. Tables 3.4 through 3.6 document the components of change year-by-year for the most recent years of 1996, 1997, and 1998. Note that Tables 3.3 through 3.6 report population as of July 1st of the year, even for the census year 1990. This is consistent with the U.S. Bureau of Census' convention of reporting intercensal population estimates as of July 1st of each year. In contrast, the 1990 population data in Table 3.2 is as of April 1st of 1990, the actual census count.

For the total study area and the Albuquerque area, natural increase remains rather stable over short periods of times, since fertility and mortality are primarily affected by the current age structure of the population. At the total study area level of aggregation, net migration tends to explain shifts in the growth of the population. And net migration[5] to the study area is primarily influenced by job creation within the local economy. For example, over the 1990-1998 time period net migration to the study area totaled 43,805, which is 5,476 per year. However, as shown in Tables 3.5 and 3.6 net migration in 1997 and 1998 was only 3,929 and 3,818, respectively. Net migration to the study area

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[5] Net migration is the difference between persons coming into the region minus persons leaving the region. Net migration can increase because more people are coming to the region, or fewer people are leaving the region.

Table 3.3

Population Estimates, Components of Change, and Compound Average Annual Growth Rate, by PIA, Albuquerque Area, and Study Area: July 1, 1990-July 1, 1998

PIA Number (1)	Population Estimate July 1...		Total Change (4)=(2)-(3)	Components of Change				Growth Rate (9)
	1998 (2)	1990 (3)		Births (5)	Deaths (6)	Natural Increase (7)=(5)-(6)	Net Migration (8)=(4)-(7)	
1	24,014	25,234	-1,220	3,932	2,064	1,868	-3,088	-0.62
2	41,849	40,139	1,710	4,456	2,317	2,138	-428	0.52
3	36,834	35,597	1,237	3,742	2,037	1,705	-468	0.43
4	34,154	34,835	-681	3,865	2,551	1,314	-1,995	-0.25
5	73,089	75,429	-2,340	10,517	5,892	4,625	-6,965	-0.39
6	3,515	3,365	150	1,071	358	713	-563	0.54
7	25,501	25,218	283	4,095	1,700	2,394	-2,111	0.14
8	13,273	12,536	737	1,546	607	939	-202	0.71
9	28,773	20,818	7,955	4,021	819	3,201	4,754	4.05
10	28,421	16,399	12,022	3,128	806	2,322	9,700	6.87
11	25,797	18,585	7,212	3,404	777	2,627	4,585	4.10
12	22,760	9,296	13,464	1,305	521	784	12,680	11.19
13	56,855	41,920	14,935	3,954	2,402	1,552	13,383	3.81
14	79,084	78,339	745	8,354	4,258	4,095	-3,351	0.12
15	21,896	19,663	2,233	2,760	1,298	1,462	771	1.34
16/21	94	104	-10	78	15	62	-72	-1.21
17	11	8	3	5	0	5	-2	3.98
18	9,656	7,162	2,494	617	224	393	2,100	3.73
19	7,701	5,482	2,218	973	264	709	1,510	4.25
23	6,802	8,590	-1,788	2,084	128	1,956	-3,745	-2.92
24	52,201	33,391	18,810	5,088	1,946	3,142	15,669	5.59
25	6,998	4,939	2,059	734	320	414	1,645	4.36
Albuquerque Area**	**540,079**	**478,720**	**61,359**	**63,907**	**29,039**	**34,867**	**26,492**	**1.51**
Study Area	**599,278**	**517,049**	**82,229**	**69,728**	**31,305**	**38,423**	**43,805**	**1.84**

** Bernalillo County Less Residents On Native American Reservations.

Table 3.4

Population Estimates, Components of Change, and Compound Annual Average Growth Rate, by PIA, Albuquerque Area, and Study Area: July 1, 1995-July 1, 1996

PIA Number (1)	Population Estimate July 1...		Total Change (4)=(2)-(3)	Components of Change				Growth Rate (9)
	1996 (2)	1995 (3)		Births (5)	Deaths (6)	Natural Increase (7)=(5)-(6)	Net Migration (8)=(4)-(7)	
1	24,130	25,350	-1220	465	251	214	-1,434	-4.93
2	41,594	41,524	70	527	319	208	-139	0.17
3	36,661	36,878	-217	474	276	198	-415	-0.59
4	34,330	35,899	-1569	458	335	122	-1,692	-4.47
5	72,538	77,591	-5053	1,272	762	510	-5,563	-6.73
6	3,561	3,490	71	138	52	85	-14	2.02
7	25,446	25,559	-113	517	227	290	-404	-0.44
8	13,170	13,051	119	187	78	109	10	0.91
9	26,004	23,421	2583	494	118	376	2,207	10.46
10	25,855	23,312	2543	422	104	317	2,226	10.35
11	24,820	23,816	1004	452	129	323	681	4.13
12	18,433	11,822	6611	196	74	122	6,489	44.42
13	54,668	52,309	2359	537	328	209	2,150	4.41
14	79,712	80,189	-478	1,019	569	449	-927	-0.60
15	21,680	21,562	118	342	174	168	-50	0.55
16/21	92	103	-11	8	3	6	-17	-11.31
17	11	11	0	1	0	1	0	0.23
18	9,526	8,721	805	80	32	48	757	8.83
19	7,499	6,674	825	120	45	75	750	11.66
23	7,242	8,778	-1536	242	18	225	-1,760	-19.23
24	48,811	44,050	4761	673	261	412	4,349	10.26
25	6,797	5,989	808	86	39	47	762	12.66
Albuquerque Area**	**526,971**	**520,060**	**6,911**	**7,950**	**3,893**	**4,057**	**2,854**	**1.32**
Study Area	**582,580**	**570,099**	**12,481**	**8,709**	**4,194**	**4,515**	**7,966**	**2.17**

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Table 3.5

Population Estimates, Components of Change, and Compound Average Annual Growth Rate, by PIA, Albuquerque Area, and Study Area: July 1, 1996-July 1, 1997

PIA Number (1)	Population Estimate July 1...		Total Change (4)=(2)-(3)	Components of Change				Growth Rate (9)
	1997 (2)	1996 (3)		Births (5)	Deaths (6)	Natural Increase (7)=(5)-(6)	Net Migration (8)=(4)-(7)	
1	24,005	24,130	-126	478	256	222	-347	-0.52
2	41,744	41,594	150	488	296	192	-42	0.36
3	36,451	36,661	-210	462	287	175	-384	-0.57
4	34,236	34,330	-94	465	338	127	-221	-0.27
5	72,954	72,538	416	1,214	728	486	-71	0.57
6	3,582	3,561	21	132	45	86	-66	0.58
7	25,409	25,446	-36	481	242	239	-275	-0.14
8	13,230	13,170	61	184	82	103	-42	0.46
9	27,251	26,004	1247	568	107	461	786	4.68
10	27,243	25,855	1388	408	113	295	1,093	5.23
11	25,493	24,820	673	462	118	344	329	2.68
12	20,943	18,433	2510	259	78	181	2,329	12.77
13	55,824	54,668	1155	513	345	169	987	2.09
14	79,654	79,712	-58	972	558	415	-472	-0.07
15	21,652	21,680	-28	332	180	152	-180	-0.13
16/21	92	92	0	10	3	7	-7	0.25
17	11	11	0	0	0	0	0	0.00
18	9,461	9,526	-65	73	35	38	-103	-0.68
19	7,683	7,499	184	124	38	86	98	2.42
23	6,811	7,242	-431	235	13	223	-654	-6.14
24	50,382	48,811	1571	707	274	433	1,138	3.17
25	6,879	6,797	82	86	39	47	34	1.19
Albuquerque Area**	**533,729**	**526,971**	**6,757**	**7,861**	**3,860**	**4,001**	**2,756**	**1.27**
Study Area	**590,990**	**582,580**	**8,410**	**8,654**	**4,173**	**4,482**	**3,929**	**1.43**

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Table 3.6

Population Estimates, Components of Change, and Compound Average Annual Growth Rate, by PIA, Albuquerque Area, and Study Area: July 1, 1997-July 1, 1998

PIA Number (1)	Population Estimate July 1...		Total Change (4)=(2)-(3)	Components of Change				Growth Rate (9)
	1998 (2)	1997 (3)		Births (5)	Deaths (6)	Natural Increase (7)=(5)-(6)	Net Migration (8)=(4)-(7)	
1	24,014	24,005	9	470	257	213	-204	0.04
2	41,849	41,744	105	494	286	208	-103	0.25
3	36,834	36,451	383	459	300	159	224	1.05
4	34,154	34,236	-82	452	334	118	-199	-0.24
5	73,089	72,954	135	1,242	729	513	-378	0.18
6	3,515	3,582	-67	128	42	86	-153	-1.89
7	25,501	25,409	92	486	236	249	-158	0.36
8	13,273	13,230	43	184	85	99	-56	0.32
9	28,773	27,251	1522	569	104	464	1,058	5.43
10	28,421	27,243	1178	408	115	293	885	4.23
11	25,797	25,493	304	457	113	344	-40	1.19
12	22,760	20,943	1817	257	70	188	1,629	8.32
13	56,855	55,824	1031	481	351	130	901	1.83
14	79,084	79,654	-570	975	562	414	-984	-0.72
15	21,896	21,652	244	338	180	158	87	1.12
16/21	94	92	2	11	3	8	-6	2.15
17	11	11	0	0	0	0	0	0.00
18	9,656	9,461	195	68	34	34	161	2.04
19	7,701	7,683	18	122	35	87	-69	0.23
23	6,802	6,811	-9	234	13	222	-231	-0.13
24	52,201	50,382	1819	717	280	438	1,381	3.55
25	6,998	6,879	119	85	39	46	73	1.71
Albuquerque Area**	**540,079**	**533,729**	**6,350**	**7,836**	**3,850**	**3,986**	**2,364**	**1.18**
Study Area	**599,278**	**590,990**	**8,288**	**8,639**	**4,169**	**4,470**	**3,818**	**1.39**

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slowed in 1997 and 1998, reflecting the slowdown in employment growth for the total study area. See Chapter 5.0 for a more complete discussion of employment trends in the study area.

For the individual PIAs, natural increase is also affected by the age structure of the population base. An older population base will have lower fertility and higher mortality, resulting in less natural increase. And vice versa. In Table 3.3 the natural increase for the study area was 38,423 between 1990 and 1998. This represented 69,728 births and 31,305 deaths. The ratio of births-to-deaths in the study area was 2.227 in this time period. A rough guide to the age structure of the individual PIAs is to examine the ratio of births-to-deaths in Tables 3.3 to 3.6. For example, Table 3.3, which contains the 1990-1998 data, indicates that PIA 9 had 4,021 births and 819 deaths for a births-to-deaths ratio of 4.910. This relatively high ratio for PIA 9 is indicative of the younger population base of PIA 9 with high fertility rates. In contrast, PIA 5 had 10,517 births and 5,892 deaths between 1990 and 1998 for a births-to-deaths ratio of 1.785. This relatively low ratio is indicative of an older population base in PIA 5.

Net migration in the individual PIAs is affected by the overall net migration to the study area as well as by the pace of PIA residential development. The high net migration PIAs in Table 3.3 are exactly correlated with the PIAs with the strongest trends in residential development. The PIAs with negative net migration— out-migration—in Table 3.3 are those PIAs where there is relatively little new homebuilding taking place. See Chapter 5.0, which discusses housing trends in the PIAs for more details.

Projection Methodology

The PIA population projections were calculated using a combination of projection methodologies that are consistent with the methods BBER used in *Urban Growth Projections 1995-2005*. First, a time-series regression technique was used to project the Albuquerque Metropolitan

Statistical Area (MSA) population. The MSA is defined as the counties of Bernalillo, Sandoval, and Valencia. Second, using a ratio-based technique, the projected MSA population was disaggregated to the county level according to the projected share of each county in the total MSA population. Finally, a housing unit method was used to project the individual PIA population.

The projection process was hierarchical and top down. The MSA population served as a control total for the general region and the counties. The projected population of the counties, in turn, provided the control total for the individual PIAs. The sum of the sub-area populations is consistent with the population of the larger area.

Albuquerque MSA Population Projection

A regional population projection approach was taken for a number of reasons. In the 1990s Valencia County became a significant population center and one of the fastest growing areas in New Mexico. This trend is expected to continue because of its proximity and easy access to the Albuquerque study area. Its major attractions are the availability of relatively inexpensive land for residential development and transportation access via I-25. Sandoval County has also been expanding rapidly since 1980 due to the availability of entry-level housing in Rio Rancho and through efforts to strengthen its economic base by attracting large industries. Bernalillo County upholds its economic primacy as the employment center for the region and continues to attract commuters from developing areas in Sandoval and Valencia counties. The presence of the interstate and state highways has provided direct access between employment and housing in the counties within the (MSA) region. Therefore, the synergism among housing availability, employment opportunities, and direct commuting has contributed to rapid population growth in the region as a whole.

Using population estimates reported by the Population Estimates Branch of the U.S. Bureau of the Census, a 35-year historical population trend (1960 to 1995) was established for the study area. This 35-year period captures the economic boom and bust cycles and the corresponding contraction and expansion in the region's population. Moreover, because population growth is likewise affected by the occurrence of births and deaths, the corresponding historical data for these demographic events were also analyzed and included in the equation.

The time-series regression equation used to project the MSA population from 1999 to 2010 is as follows:

$Y_i = a + b_i X_i,$

where Y = the population to be estimated;

a = the intercept of the regression equation which is equivalent to the average population estimate in the absence of the independent factor(s) X;

b = the regression coefficient or the weight associated with each X;

X = the independent variable or factor associated with Y; and

i = indicates that the term varies from 1 to n.

In this equation the independent variables (X_i) considered are the following:

a) X_1 = time, from 0 (1960) to 34 (1995);

b) X_2 = number of births from 1960 to 1995; and

c) X_3 = number of deaths from 1960 to 1995.

The number of nonagricultural jobs as a proxy for migration was initially considered, but was dropped in the final model because it was not statistically significant. More importantly, its inclusion resulted in a lower explained variance (R^2). It appears that the effect of employment on population levels is confounded by the effects of births and deaths. This is to be expected when one considers that migrants in their peak economic and reproductive ages dominate the migration streams to the MSA. These young migrants contribute their fertility, while at the same time, because of their young age structure, help dampen the mortality rate in the region. In general, a young population has lower mortality rate than an old population.

Also, while employment was not a direct factor in the population projection model, the projected study area population for the 1999-2010 time period was analyzed with respect to the projected study area employment. (See Chapter 4.0). The ratio of study area employment-to-population in the 1999-2010 time period is consistent with the 1960-1995 historical trend in this ratio. Thus, the employment projections for the study area in Chapter 4.0 served as an important check on the study area population projections here.

County Population Projection Methodology

A ratio-based population projection technique was used to allocate the projected MSA population to Bernalillo, Sandoval, and Valencia counties. The proportionate share of each county was projected using a time-series regression technique similar to the one above with one difference. This difference is in the assumption that the change in the county-to-MSA ratio was largely a function of time. However, the historical ratio for each county was based on the same 35-year county data used in the MSA projection.

Three regression equations were designed to estimate the share of each county in the MSA population. The ratios were then aggregated to ensure that they added to unity. These county populations served as the control total for the projected PIA populations.

PIA Population Projection Methodology

The population of each PIA was projected using a housing unit method. The procedure is similar to that used in estimating the PIA populations from July 1, 1995 to July 1, 1998. The number of projected housing units provided the basis for the projected PIA population. (See Chapter 5.0).

The housing data were also delayed for occupancy for the same time period as in the population estimation procedure: three months for single family housing units, six months for multi-family housing units, and no delay for mobile homes. Single and multifamily housing units were projected separately and results are in Chapter 5.0.

The housing occupancy rates used were based on the 1990 census, updated with current data on apartment vacancies provided by the Apartment Association of New Mexico. Occupancy rates for mobile homes and single family homes were adjusted according to the rate of change in occupancy between 1980 and 1990. The average household size (persons per household) was projected based on the rate of change between the 1980 and 1990 censuses. The PIA population projections are consistent with the population projections of Bernalillo and Sandoval counties. PIA 24 and 25 lies within Sandoval County, while the remaining PIAs are all located within Bernalillo County.

The population projections here assume no abnormal economic, political, and demographic conditions in the future. Unforeseeable catastrophic events could significantly alter these projections. These populations projections assume that the future will be a reflection of past and current economic and demographic trends in the Albuquerque MSA. Future population projections do incorporate the likely outlook for the region's economy, trends in average household size,

fertility rates, and mortality rates. The individual PIA population projections rely upon the forecasts of housing in each PIA, which in turn have incorporated assumptions based upon existing land use plans, available vacant land zoned for different types of development, likely infill and redevelopment projects, and the physical infrastructure.

Population Projections

Table 3.7 presents the population projections for the study area, the Albuquerque area, and the individual PIAs for the years 1999 through 2010. Total study area population is expected to reach 615,811 in 2000 and then increase to 701,726 by 2010. This represents a total increase of 85,915 persons within the study area during the first decade of the 21st century. Study area population growth will average 1.29 percent per year during the first part of the decade, and 1.34 percent during the second half. Growth during the early part of the decade is restrained by the relatively weak economy of the Albuquerque region in the late 1990s and early 2000s. Employment growth is expected to pick up by 2003 so that net migration will be slightly stronger in the second half of the decade.

Total population within the defined Albuquerque area reaches 551,716 in 2000 and then increases to 608,437 by 2010. This represents a total increase of 56,721 persons during the 2000-2010 time period. In 2000 the Albuquerque area represents 89.6 percent of study area population. But by 2010 this percentage has fallen to 86.7 percent, continuing a trend evident since at least 1980. Rio Rancho and Corrales in Sandoval County are not included within the Albuquerque area definition, and Rio Rancho, in particular, has been and is expected to continue to experience strong population growth. Between 2000 and 2010 the Albuquerque area accounts for only two-thirds of the total increase in study area population. Rio Rancho and Corrales account for the other third. The

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Table 3.7

Population Projections by PIA: July 1, 1999 to July1, 2010

PIA Number	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	24,017	24,020	24,022	24,046	24,070	24,093	24,117	24,141	24,165	24,189	24,213	24,237
2	41,665	41,115	41,148	41,188	41,235	41,288	41,337	41,391	41,453	41,513	41,574	41,610
3	38,382	40,577	41,589	42,676	43,676	44,820	46,087	47,118	48,170	49,235	50,563	51,890
4	33,689	33,692	33,659	33,608	33,558	33,508	33,457	33,407	33,357	33,307	33,257	33,207
5	72,416	71,731	71,547	71,375	71,181	71,023	70,850	70,693	70,547	70,392	70,235	70,037
6	3,496	3,437	3,426	3,415	3,404	3,394	3,383	3,372	3,361	3,350	3,338	3,323
7	25,352	25,288	25,223	25,168	25,105	25,064	25,040	25,006	24,981	24,977	24,954	24,903
8	13,215	13,216	13,203	13,183	13,164	13,144	13,124	13,104	13,085	13,065	13,046	13,026
9	29,574	30,509	31,472	32,467	33,492	34,550	35,642	36,767	37,929	39,127	40,363	41,638
10	29,419	30,280	31,157	32,047	32,962	33,903	34,871	35,866	36,890	37,944	39,027	40,141
11	27,472	28,255	29,060	29,888	30,740	31,616	32,481	33,370	34,283	35,221	36,185	37,176
12	23,986	25,084	26,328	27,489	28,847	30,216	31,687	33,083	34,645	36,129	37,334	38,549
13	57,300	57,995	58,288	58,787	59,038	59,432	59,648	59,870	60,160	60,386	60,612	60,802
14	79,231	79,096	78,940	78,789	78,625	78,491	78,349	78,216	78,095	77,971	77,846	77,674
15	22,224	22,777	22,992	23,184	23,335	23,475	23,613	23,754	23,899	24,045	24,194	24,330
16/21	97	123	146	176	206	236	238	240	243	245	301	376
17	5	4	4	4	4	4	4	4	4	4	4	4
18	9,849	9,919	10,009	10,103	10,197	10,297	10,397	10,499	10,604	10,709	10,815	10,917
19	7,788	7,843	7,959	8,078	8,199	8,324	8,450	8,579	8,711	8,846	8,982	9,116
20	0	0	0	0	0	0	0	0	0	0	100	101
23	6,766	6,756	6,627	6,497	6,362	6,229	6,092	5,954	5,814	5,672	5,527	5,380
24	54,566	56,926	59,371	61,904	64,527	67,242	70,052	72,954	75,949	79,040	82,229	85,516
25	7,088	7,169	7,237	7,302	7,367	7,430	7,492	7,552	7,610	7,666	7,720	7,773
Albuquerque Area**	**545,942**	**551,716**	**556,799**	**562,166**	**567,400**	**573,106**	**578,867**	**584,435**	**590,397**	**596,327**	**602,470**	**608,437**
Study Area	**607,595**	**615,811**	**623,407**	**631,372**	**639,294**	**647,778**	**656,411**	**664,941**	**673,956**	**683,034**	**692,420**	**701,726**

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Albuquerque area's population is expected to grow at about a 1.0 percent annual rate of growth during this forecast period, slower than the expected population growth for the total study area.

Population growth within the study area and the Albuquerque area will be less than the 1.84 percent annual growth experienced during the 1990s. As the population ages, fertility will gradually decline, while mortality will increase somewhat. Thus, the natural increase in population is expected to slow. Employment growth in the 2000-2010 time period is projected to be somewhat less than what was experienced on average during the 1990s. Nationally and in the Albuquerque region, there will be less natural growth in the labor force due to the aging of the population. There will be less opportunity to attract economic migrants to this region. The stronger productivity trends, evident during the 1990s, will continue and imply that economic production can be expanded with fewer workers. The improvement in productivity, which is a healthy economic indicator for the economy, nevertheless implies less growth in employment and potential economic migration in the future.

Table 3.7 also includes the population projections for each PIA annually for the years 1999 through 2010. Table 3.8 shows the year-by-year rates of change in expected PIA population. These population projections for the PIAs indicate a continuation of the dominant trend in the spatial distribution of population evident in the 1990s-- a stagnant to slightly declining population in the large population centers on the city's east side, and fast growth on the west side from the Southwest Mesa to Rio Rancho.

PIA 14 has the largest population base among all the PIAs in 2000 at 79,096 persons. However, over the forecast period population in PIA 14 is expected to decline modestly to 77,674. PIA 14 includes the traditional Northeast Heights area of Albuquerque, east of Wyoming. There will be little new residential development in PIA 14 so that this PIA will not attract new residents via an expansion of the housing stock. Natural increase will be below average, reflecting an older population, and will not be sufficient to offset the expected out-migration to other PIAs.

Table 3.8

Compound Annual Average Population Growth Rate: 1999-2010

PIA Number	As of July 1...										
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
1	0.01	0.01	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
2	-1.33	0.08	0.10	0.11	0.13	0.12	0.13	0.15	0.15	0.15	0.09
3	5.56	2.46	2.58	2.32	2.59	2.79	2.21	2.21	2.19	2.66	2.59
4	0.01	-0.10	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15
5	-0.95	-0.26	-0.24	-0.27	-0.22	-0.24	-0.22	-0.21	-0.22	-0.22	-0.28
6	-1.70	-0.32	-0.33	-0.32	-0.29	-0.32	-0.32	-0.32	-0.34	-0.36	-0.44
7	-0.25	-0.26	-0.22	-0.25	-0.16	-0.10	-0.14	-0.10	-0.02	-0.09	-0.20
8	0.01	-0.10	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15
9	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11
10	2.88	2.85	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
11	2.81	2.81	2.81	2.81	2.81	2.70	2.70	2.70	2.70	2.70	2.70
12	4.48	4.84	4.31	4.82	4.64	4.75	4.31	4.61	4.19	3.28	3.20
13	1.21	0.50	0.85	0.43	0.66	0.36	0.37	0.48	0.38	0.37	0.31
14	-0.17	-0.20	-0.19	-0.21	-0.17	-0.18	-0.17	-0.15	-0.16	-0.16	-0.22
15	2.46	0.94	0.83	0.65	0.60	0.59	0.60	0.61	0.61	0.62	0.56
21	23.49	17.50	18.79	15.66	13.46	0.92	0.95	0.99	1.01	20.57	22.22
16	23.49	17.50	18.79	15.66	13.46	0.92	0.95	0.99	1.01	20.57	22.22
17	-36.09	0.55	0.55	0.55	0.55	0.54	0.54	0.54	0.54	0.53	0.53
18	0.71	0.90	0.93	0.93	0.98	0.97	0.98	0.99	0.98	0.99	0.94
19	0.71	1.46	1.49	1.48	1.52	1.50	1.51	1.54	1.53	1.53	1.48
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	-0.15	-1.92	-1.99	-2.09	-2.13	-2.22	-2.30	-2.37	-2.47	-2.58	-2.70
24	4.23	4.21	4.18	4.15	4.12	4.09	4.06	4.02	3.99	3.95	3.92
25	1.15	0.93	0.91	0.88	0.85	0.83	0.80	0.77	0.74	0.70	0.67
Albuquerque Area**	**1.05**	**0.92**	**0.96**	**0.93**	**1.00**	**1.00**	**0.96**	**1.01**	**1.00**	**1.02**	**0.99**
Study Area	**1.34**	**1.23**	**1.27**	**1.25**	**1.32**	**1.32**	**1.29**	**1.35**	**1.34**	**1.36**	**1.34**

** Bernalillo County less residents on Native American Reservations.

PIA 5 has an estimated population of 71,731 in 2000 and this is expected to decline slightly to 70,037 by 2010. PIA 5 is the second largest PIA by population and includes the near Northeast Heights, the university area, and the Southeast Heights. This is primarily an older population with less natural increase in population. There is also expected to be little new residential development in PIA 5 during the forecast period.

PIA 4, which includes the Uptown area, has an estimated population of 33,692 in 2000. And PIA 4's population is also projected to decline modestly to 33,207 by 2010. PIA 15, which is the East Central area of Albuquerque, will see some population growth during the forecast period, increasing from 22,777 in 2000 to 24,330 in 2010. There will be significant residential development in the developable land around the Eubank gate of Kirtland AFB in the first part of the decade. The expansion of the PIA's housing stock allows for positive net migration. PIA 23, which is Kirtland AFB, will see a decline in population from 6,756 in 2000 to 5,380 in 2010. Kirtland AFB will see a continued loss of housing stock, as antiquated military housing is demolished. Some replacement building is expected in PIA 23, but its housing stock in 2010 will still be less than current levels.

All of the PIAs discussed above—PIAs 4, 5, 14, 15, and 23—are located east of the Albuquerque downtown area and south of Montgomery Boulevard. These five PIAs make up the traditional Northeast and Southeast Heights of Albuquerque. In the 2000-2010 time period population in this traditional population center of Albuquerque will be essentially stagnant. In 2000 the population of these five PIAs totaled 214,052. By 2010, their population is expected to decline to 210,688—a loss of 3,424 persons or a 1.6 percent total decrease.

In contrast, PIAs located west of the Rio Grande from the Southwest Mesa on the south to Rio Rancho on the north will account for almost 85 percent of the total population growth in the study area in the 2000-2010 time period. These west side PIAs have a young population base with high fertility and low mortality so that the natural increase component is strong. On top of that, these

areas have much of the developable vacant land in the study area so that residential development in the future will be concentrated here.

PIA 12—the Cottonwood/Paradise Hills/Ventana Ranch—and PIA 24—Rio Rancho—will lead the way. PIA 12 has an estimated population of 25,084 in 2000, which is expected to increase to 38,549 by 2010. PIA 24 will see population increase from 56,926 in 2000 to 85,516 in 2010. Both PIA 12 and PIA 24 have ample developable land and are expected to experience continued residential development, both single family and multifamily, in this forecast period.

PIA 9 is the Southwest Mesa and it has seen explosive population growth since 1995, as the region's homebuilders have found low cost land there to build affordable, entry-level homes. The pace of residential development is expected to remain strong because of recent improvements to the major transportation corridor (Rio Bravo). PIA 9's population is expected to increase from 30,509 in 2000 to 41,638 in 2010. PIA 10 includes the area west of Albuquerque's downtown , straddling I-40. It is primarily being developed by Westland Corporation. With good interstate access, this PIA will see continued growth in the forecast period. PIA 10's population is expected to increase from 30,280 in 2000 to 40,141 in 2010. PIA 11 will also see above average growth with population increasing from 28,255 in 2000 to 37,176 in 2010. The Oxbow residential development around St. Pius X High School will expand the housing stock within PIA 11 and attract new residents.

The west side PIAs—9, 10, 11, 12, 24, and 25—have an estimated 178,223 residents in 2000. By 2010, their population is expected to increase to 250,793 for a total increase of 72,570 persons. This total increase represents 84.5 percent of the total projected increase of 85,915 persons in the study area between 2000 and 2010.

Other population growth areas within the study area will be found in PIA 3 and PIA 13 in the Far Northeast Heights of Albuquerque. PIA 3 straddles North I-25 and includes the new residential development of Vista del Norte on its western edge, which should appeal to young families. This

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large-scale development of single family and multifamily houses will proceed throughout the forecast period, and will result in an increase in PIA 3's population base. PIA 3 population is expected to increase from 40,577 in 2000 to 51,890 in 2010. PIA 13 includes the North Albuquerque Acres area of the study area and will see population increase from 57,995 in 2000 to 60,802. There will be further residential development in PIA 13, although the densities are lower than in other parts of the study area. PIA 13 is also a more affluent area with smaller household sizes, an older population, and less natural increase in population.

The South Valley PIAs, which include PIAs 6,7, and 8, will see stagnant population trends during the forecast period. All are expected to see small declines in population, as a fairly high natural increase is insufficient to offset the expected net out-migration. PIA 6 is expected to decrease from 3,437 in 2000 to 3,323 in 2010; PIA 7 is projected to decline in population from 25,288 in 2000 to 24,903 in 2010; and PIA 8's population will decline from 13,216 in 2000 to 13,026 in 2010.

The East Mountain PIAs 18 and 19 will experience continued population growth in the 2000-2010 time period, although the population base is still small. PIA 1—downtown Albuquerque—is expected to see a reversal of the population decline of the 1990s and is projected to have a small population increase from 24,020 in 2000 to 24,237 in 2010. Efforts to revitalize the downtown area are now underway and will bring additional small scale apartments to the downtown area. PIA 16/21 will begin to see some small population gains in the forecast period with the expected development of the Volcano Cliffs area and, later in the decade, with the beginnings of development at Quail Ranch. Similarly, in PIA 20—Mesa del Sol—housing and population are not expected to appear until the end of the forecast period.

Table 3.9 ranks the PIAs by population size for 1995, 2000, 2005, and 2010. Table 3.10 ranks the PIAs by population growth in the 1995-2000, 2000-2005, and 2005-2010 time periods. The

Table 3.9

PIA's Ranked by Population Size: 1995, 2000, 2005, 2010

Rank Number	PIA Number	Estimated 7/1/95	PIA Number	Projected 2000	PIA Number	Projected 2005	PIA Number	Projected 2010
1	PIA 14	80,189	PIA 14	79,096	PIA 14	78,349	PIA 24	85,516
2	PIA 5	77,591	PIA 5	71,731	PIA 5	70,850	PIA 14	77,674
3	PIA 13	52,309	PIA 13	57,995	PIA 24	70,052	PIA 5	70,037
4	PIA 24	44,050	PIA 24	56,926	PIA 13	59,648	PIA 13	60,802
5	PIA 2	41,524	PIA 2	41,115	PIA 3	46,087	PIA 3	51,890
6	PIA 3	36,878	PIA 3	40,577	PIA 2	41,337	PIA 9	41,638
7	PIA 4	35,899	PIA 4	33,692	PIA 9	35,642	PIA 2	41,610
8	PIA 7	25,559	PIA 9	30,509	PIA 10	34,871	PIA 10	40,141
9	PIA 1	25,350	PIA 10	30,280	PIA 4	33,457	PIA 12	38,549
10	PIA 11	23,816	PIA 11	28,255	PIA 11	32,481	PIA 11	37,176
11	PIA 9	23,421	PIA 7	25,288	PIA 12	31,687	PIA 4	33,207
12	PIA 10	23,312	PIA 12	25,084	PIA 7	25,040	PIA 7	24,903
13	PIA 15	21,562	PIA 1	24,020	PIA 1	24,117	PIA 15	24,330
14	PIA 8	13,051	PIA 15	22,777	PIA 15	23,613	PIA 1	24,237
15	PIA 12	11,822	PIA 8	13,216	PIA 8	13,124	PIA 8	13,026
16	PIA 23	8,778	PIA 18	9,919	PIA 18	10,397	PIA 18	10,917
17	PIA 18	8,721	PIA 19	7,843	PIA 19	8,450	PIA 19	9,116
18	PIA 19	6,674	PIA 25	7,169	PIA 25	7,492	PIA 25	7,773
19	PIA 25	5,989	PIA 23	6,756	PIA 23	6,092	PIA 23	5,380
20	PIA 6	3,490	PIA 6	3,437	PIA 6	3,383	PIA 6	3,323

*PIAs 16/21, 17, and 20 have been excluded from this table due to small population numbers.

Table 3.10

PIA's Ranked by Compound Annual Average Growth Rate: 1995 - 2010

Rank Number	PIA Number	1995-2000	PIA Number	2000-2005	PIA Number	2005-2010
1	PIA 12	15.05	PIA 12	4.67	PIA 24	3.99
2	PIA 9	5.29	PIA 24	4.15	PIA 12	3.92
3	PIA 10	5.23	PIA 9	3.11	PIA 9	3.11
4	PIA 24	5.13	PIA 10	2.82	PIA 10	2.81
5	PIA 25	3.60	PIA 11	2.79	PIA 11	2.70
6	PIA 11	3.42	PIA 3	2.55	PIA 3	2.37
7	PIA 19	3.23	PIA 19	1.49	PIA 19	1.52
8	PIA 18	2.57	PIA 18	0.94	PIA 18	0.98
9	PIA 13	2.06	PIA 25	0.88	PIA 25	0.74
10	PIA 3	1.91	PIA 15	0.72	PIA 15	0.60
11	PIA 15	1.10	PIA 13	0.56	PIA 13	0.38
12	PIA 8	0.25	PIA 2	0.11	PIA 2	0.13
13	PIA 2	-0.20	PIA 1	0.08	PIA 1	0.10
14	PIA 7	-0.21	PIA 8	-0.14	PIA 7	-0.11
15	PIA 14	-0.27	PIA 4	-0.14	PIA 4	-0.15
16	PIA 6	-0.31	PIA 14	-0.19	PIA 8	-0.15
17	PIA 1	-1.08	PIA 7	-0.20	PIA 14	-0.17
18	PIA 4	-1.27	PIA 5	-0.25	PIA 5	-0.23
19	PIA 5	-1.57	PIA 6	-0.31	PIA 6	-0.36
20	PIA 23	-5.24	PIA 23	-2.07	PIA 23	-2.49

*PIAs 16/21, 17, and 20 have been excluded from this table due to small population numbers.
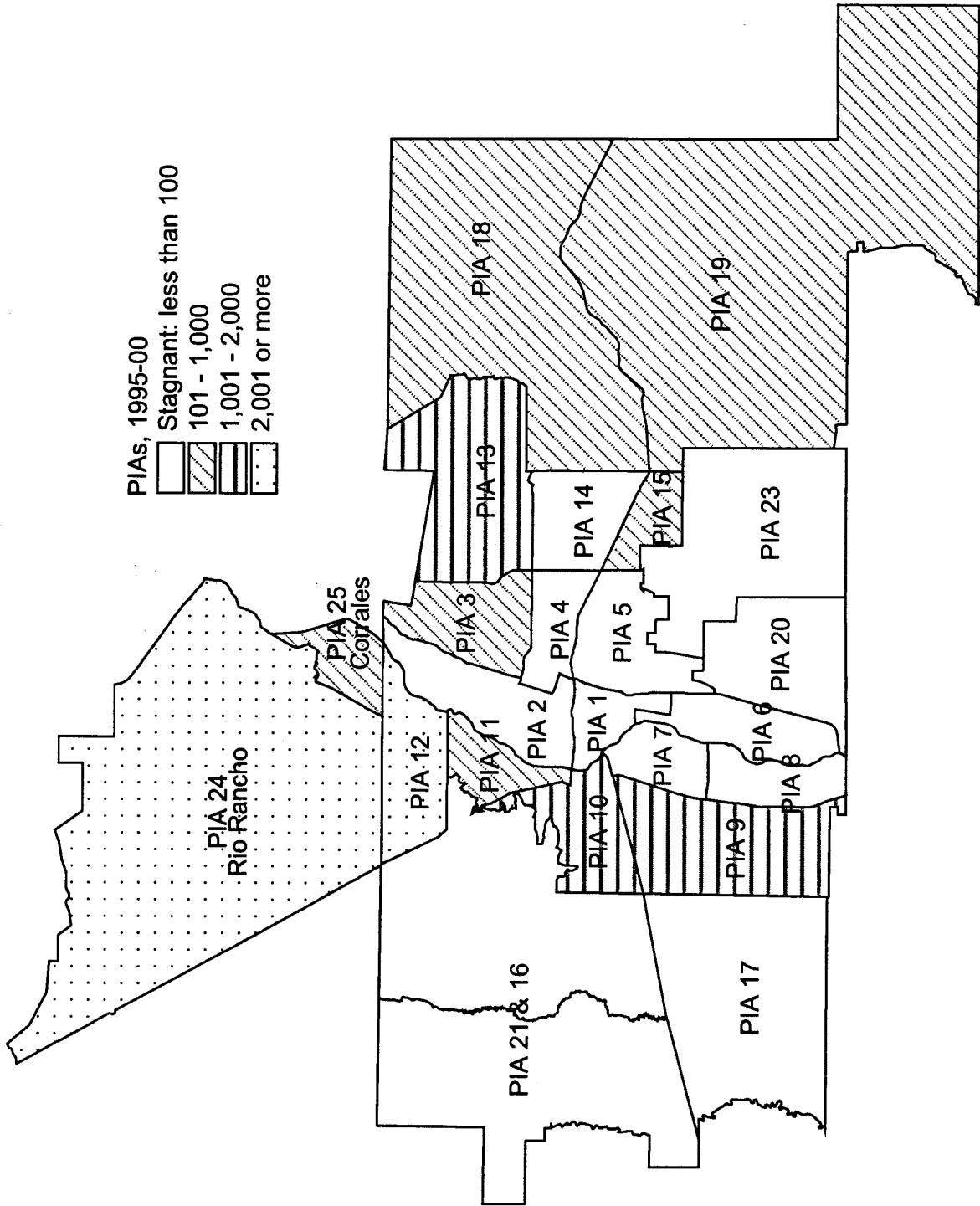
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largest population centers within the study area will continue to be located on Albuquerque's east side including PIAs 5, 13, and 14. Interestingly, by 2010 PIA 24 (Rio Rancho) surpasses PIA 14 as the PIA with the largest population base. PIA 3 grows in importance as a population center as new residential development becomes concentrated there.

Only seven PIAs will have population growth above the study area average. Five of these are on the study area's west side and include PIAs 9, 10, 11, 12, and 24. PIA 3 in the far north and PIA 19 in the East Mountain areas will also have above average population growth. Maps 3.1 through 3.3 provide a useful visual of these PIA growth trends. Another six PIAs will have positive, but below average population growth between 2000 and 2010. These are PIAs where there is still vacant developable land and some residential development is projected during this forecast period. These include PIA 15 (East Central), PIA 13 (North Albuquerque Acres), PIA 25 (Corrales), PIA 1 (Downtown), PIA 2 (North Valley), and PIA 18 (East Mountains). Seven PIAs are expected to lose population during the first decade of the 21st century. Except for PIA 23 (Kirtland AFB), this population loss is expected to be small. It is probably more accurate to describe the population trends of these PIAs as stagnant. These stagnant PIAs include PIAs 4, 5, and 14 in the traditional Northeast Heights and Southeast Heights and PIAs 6, 7, and 8 in the South Valley. PIA 23 (Kirtland AFB) will see the largest percentage decline in population due to demolition of the military housing stock.
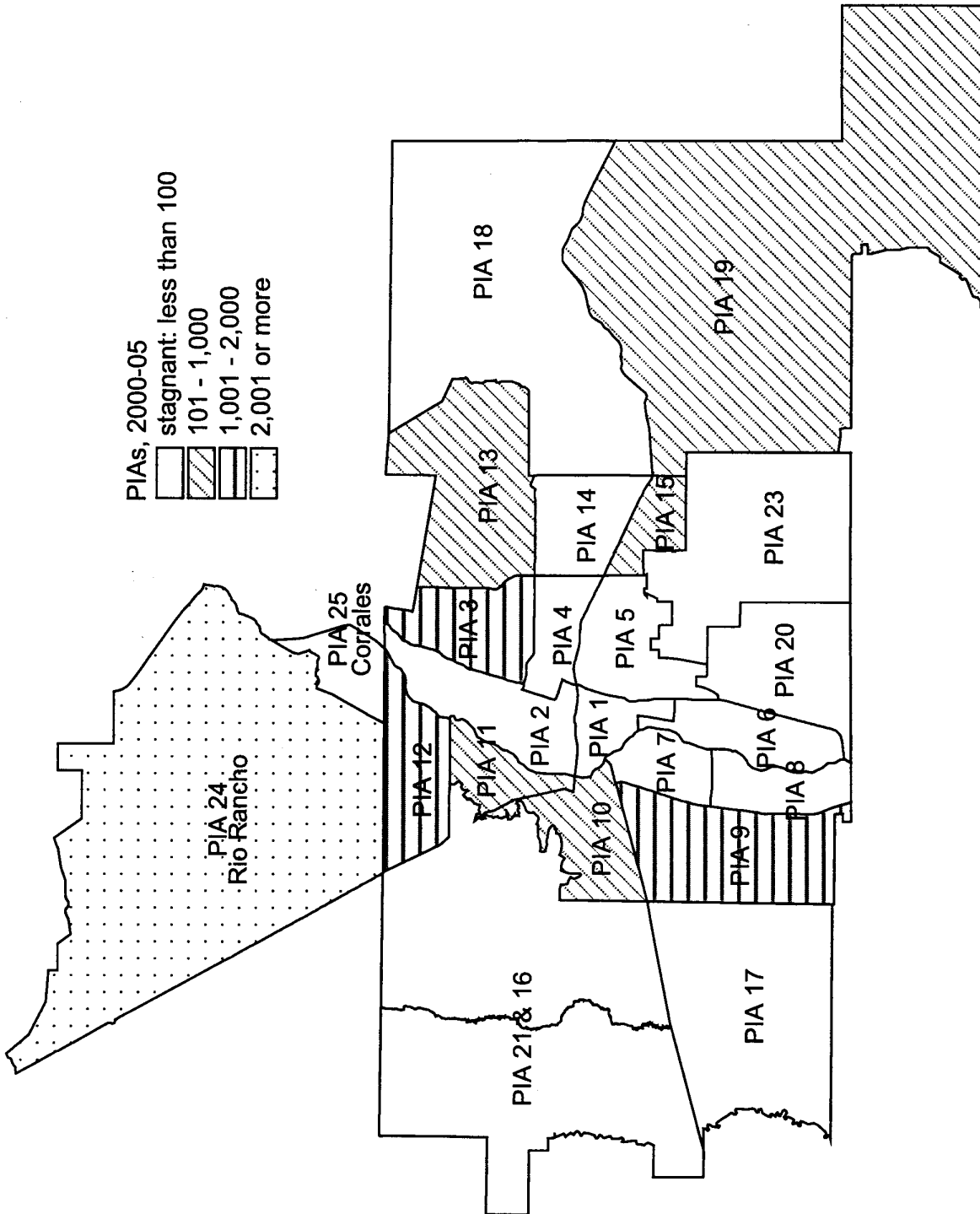
PIA Population Projections, Ages 0-18

Appendix C presents age-specific population projections by PIA for the age 0-18 age cohorts for the years 1999 through 2010. These age-specific population projections were prepared for the

Map 3.1
Net Population Growth by PIA: 1995-2000

PIAs, 1995-00
Stagnant: less than 100
101 - 1,000
1,001 - 2,000
2,001 or more

PIA 18

PIA 19

PIA 13

PIA 14

PIA 15

PIA 23

PIA 25
Corrales

PIA 3

PIA 4

PIA 5

PIA 20

PIA 11

PIA 2

PIA 1

PIA 6

PIA 12

PIA 7

PIA 8

PIA 24
Rio Rancho

PIA 10

PIA 9

PIA 21 & 16

PIA 17

Map 3.2
Net Population Growth by PIA: 2000-2005

PIAs, 2000-05
☐ stagnant: less than 100
▨ 101 - 1,000
▤ 1,001 - 2,000
⊡ 2,001 or more

PIA 24
Rio Rancho

PIA 25
Corrales

PIA 12

PIA 11

PIA 2

PIA 3

PIA 4

PIA 13

PIA 14

PIA 15

PIA 18

PIA 19

PIA 1

PIA 5

PIA 23

PIA 7

PIA 6

PIA 20

PIA 8

PIA 10

PIA 9

PIA 21 & 16

PIA 17

Map 3.3
Net Population Growth by PIA: 2005-2010

PIAs, 2005-2010
Stagnant: less than 100
101 - 1,000
1,001 - 2,000
2,001 or more

PIA 18

PIA 19

PIA 13

PIA 14

PIA 15

PIA 23

PIA 25
Corrales

PIA 3

PIA 4

PIA 5

PIA 20

PIA 6

PIA 24
Rio Rancho

PIA 12

PIA 11

PIA 2

PIA 1

PIA 7

PIA 8

PIA 10

PIA 9

PIA 21 & 16

PIA 17
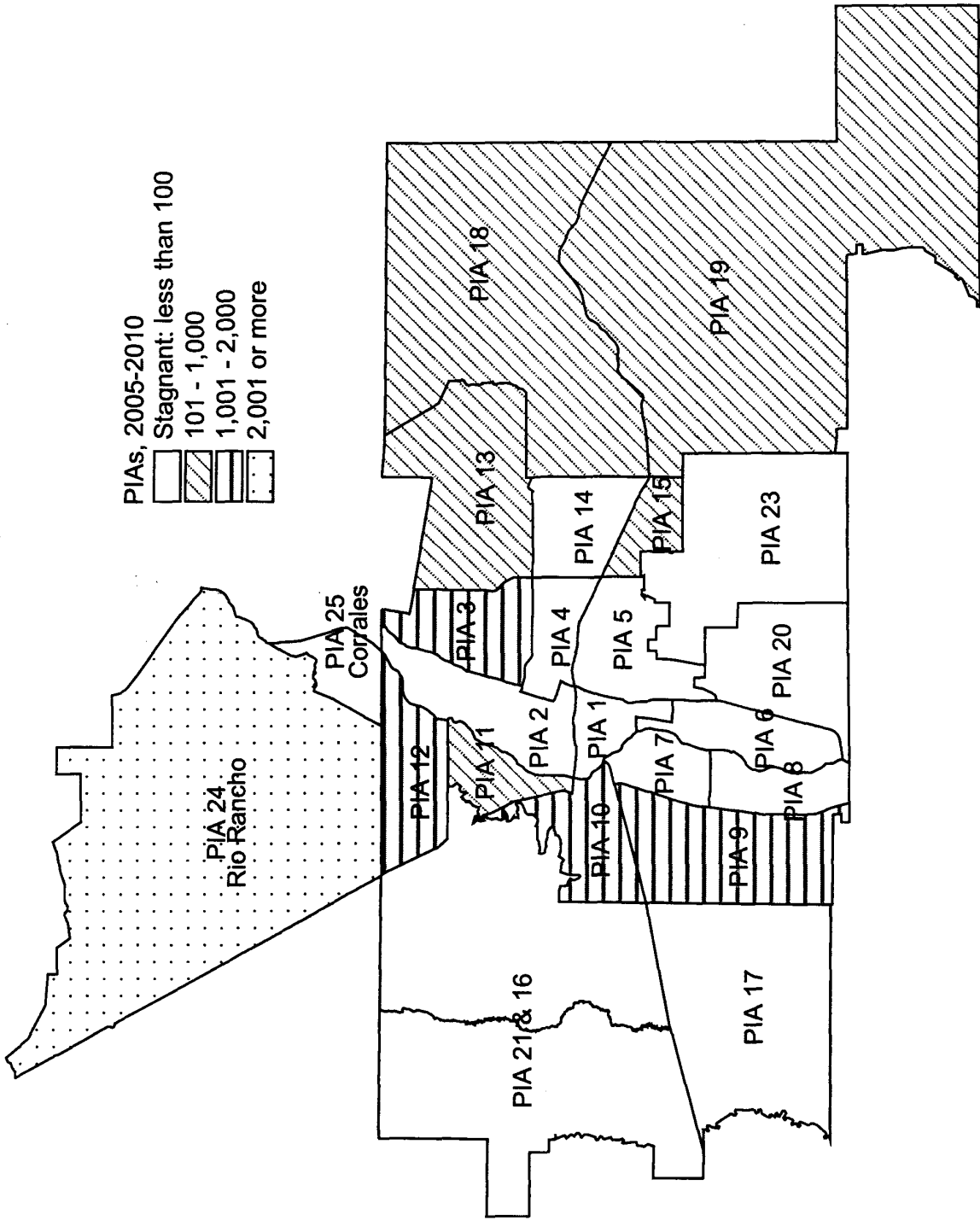
Chart 3.1
Population Projection Totals by PIA for 2000, 2005, and 2010; Ranked by 2000 Population

Legend: □ 2000 ▥ 2005 ■ 2010

Y-axis: PIA Number (6, 23, 25, 19, 18, 8, 15, 1, 12, 7, 11, 10, 9, 4, 3, 2, 24, 13, 5, 14)

X-axis: Total Population (0, 10,000, 20,000, 30,000, 40,000, 50,000, 60,000, 70,000, 80,000, 90,000)

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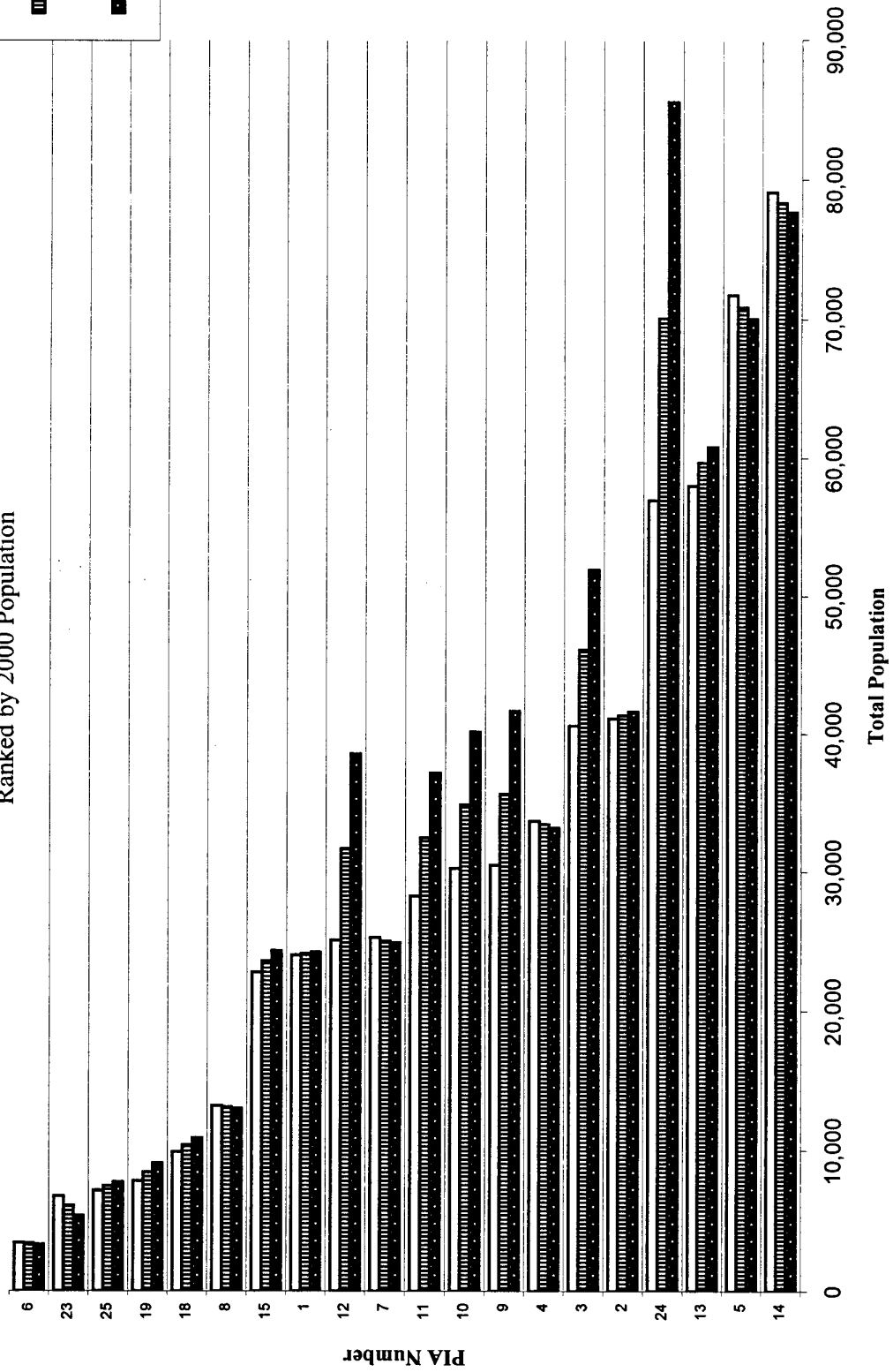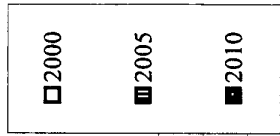
Albuquerque Public Schools, under a separate contract with the University of New Mexico Bureau of Business and Economic Research.

Albuquerque Water Management Area Population Projections, 2000-2070

Appendix D presents long term population projects for the Albuquerque Water Management Area for the years 2000 through 2070. These population projections were prepared for the City of Albuquerque Public Works Department by the University of New Mexico Bureau of Business and Economic Research.