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Update of the Census for Lea County: Population Dynamics

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UNM | Geospatial and Population Studies

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Executive Summary

Population growth in Lea County from 2000 to 2010 was its highest in decades. After a brief population boom-bust centered in the mid nineteen-eighties, the number of county residents remained relatively flat throughout the nineties. Beginning in 2000, the population began to climb steadily due to both natural increase and a net in-migration that corresponded with rising employment opportunities. More remarkable has been the continued population growth witnessed since 2010, especially in light of the flat growth and population decline that has simultaneously occurred throughout much of New Mexico. Lea County is currently the fastest growing in the state, and there are no indications that this distinction will soon be relinquished.

The most notable aspects of recent population growth are the ever-increasing share of the Hispanic population and the younger age structure of the county. These two aspects are very much related because Hispanics typically have a higher fertility rate compared with non-Hispanics. Therefore, as the number of Hispanics grows, so does the number of Hispanic babies being born each year.

Growth in total residential housing units within Lea County has also been strong at 6.5% from 2000 to 2010. This has not, however, kept pace with population growth of 16.6% over the same period. In order to accommodate the growing number of residents, occupancy rates and persons per household have both risen considerably. All of these trends cannot continue independently. Housing growth must remain at the rate that is currently being witnessed in the City of Hobbs or the projection below will be constrained by a lack of available housing.

Using methods demonstrated to be consistently accurate in New Mexico, GPS is projecting a total 2020 population for Lea County of approximately 75,855. **Figure ES.1** distributes this projection among the five Census County Divisions (CCD). The City of Hobbs will continue to grow the fastest in terms of numbers and as a percent of the total county population. Lovington, the second largest CCD behind Hobbs, is expected to grow at the second fastest rate. We further anticipate that economic activity in the southern part of the county should lead to faster growth in the Jal CCD while the Eunice CCD will grow at a slightly lower rate than in the previous decade. We expect the population of the Tatum CCD to rise slightly and at the slowest rate in the county.

Figure ES.1 Lea County 2020 Population Projections by CCD

Geography	2000	2010	2015	2020
Eunice CCD	2,896	3,220	3,412	3,574
Hobbs CCD	36,631	43,305	47,349	51,444
Jal CCD	2,118	2,175	2,202	2,298
Lovington CCD	12,534	14,624	15,886	17,077
Tatum CCD	1,332	1,403	1,442	1,462
Lea County/Hobbs MSA	55,511	64,727	70,291	75,855

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Acknowledgements

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Our thanks are also extended to the many individuals and agencies throughout the state of New Mexico and the federal government whose data made this analysis possible and whose expertise helped make sense of nuanced data. They include, but are not limited to, our colleagues at the U.S. Census Bureau, the Federal-State Cooperative for Population Estimates, the Federal-State Cooperative for Population Projections, the Internal Revenue Service, the New Mexico Department of Health, the New Mexico Motor Vehicle Division, the New Mexico Secretary of State's Office, and the New Mexico Public Education Department.

Robert Rhatigan

Lea County Population Dynamics

Introduction

Lea County, New Mexico was formed in 1917 from eastern portions of Eddy and Chaves Counties. Located in the southeast corner of the state, settlement by European decedents of what is now Lea County began in the eighteen hundreds as ranchers in Texas pushed west in search of precious water and grasslands for large herds of cattle.[1] Lea County is an integral part of New Mexico's unique identity although to this day it remains in many ways more economically and culturally tied to West Texas than Albuquerque, Santa Fe or the rest of the Enchanted State. In the early nineteen hundreds homesteaders staked claims wherever there was potentially viable ranch or farm land.[2] Life was difficult in the early years with little water, no railroad, no telegraph, no daily newspaper and no sizable city.[3] By the 1920 census, the first conducted after Lea County was formed, 3,545 people were counted.[4] Lea County's history changed course in 1927 after oil exploration in nearby Winkler County, Texas led to oil discoveries around Hobbs.[5] Since then the energy industry has been the primary force driving the economy and shifts in population. The dynamics are of course much more complicated than that, but for the foreseeable future, energy will continue to shape Lea County.

Lea County Historical Demographics 1920-2000

From 1920 the population of Lea County grew steadily to 53,429 in 1960 (**Figure 1 and Table 1**). As population growth in the rest of New Mexico flattened due largely to declining natural resource prices, the population of Lea County fell back below 50,000 by 1970. The following three Censuses of 1980, 1990, and 2000 each recorded between 55,000 and 56,000 people. The population of the county was not as stable as these decennial counts might suggest, however. Like many places whose economy is strongly linked to natural resources, Lea County is susceptible to boom-bust cycles of population change that aren't necessarily captured in decennial census counts. Annual population estimates from the US Census Bureau show the variability in population that can occur between censuses (**Figure 2**). The rapid rise in population to over 65,000 in the early 1980s, and the equally rapid fall back to 55,000, serves to illustrate just how volatile the population of Lea County can be.

[1] http://online.nmartmuseum.org/nmhistory/growing-new-mexico/ranching/history-ranching.html
[2] http://aces.nmsu.edu/orrenbeaty/history-of-early-farming.html
[3] Unless otherwise stated, all demographic statistics are from the US Census Bureau and are available at http://factfinder.census.gov
[4] http://www.leacounty.net/p.aspx?pID=289&
[5] http://aoghs.org/states/hobbs-new-mexico-oil-discovery/

Figure 1. Lea County Decennial Census Population Counts 1920-2010

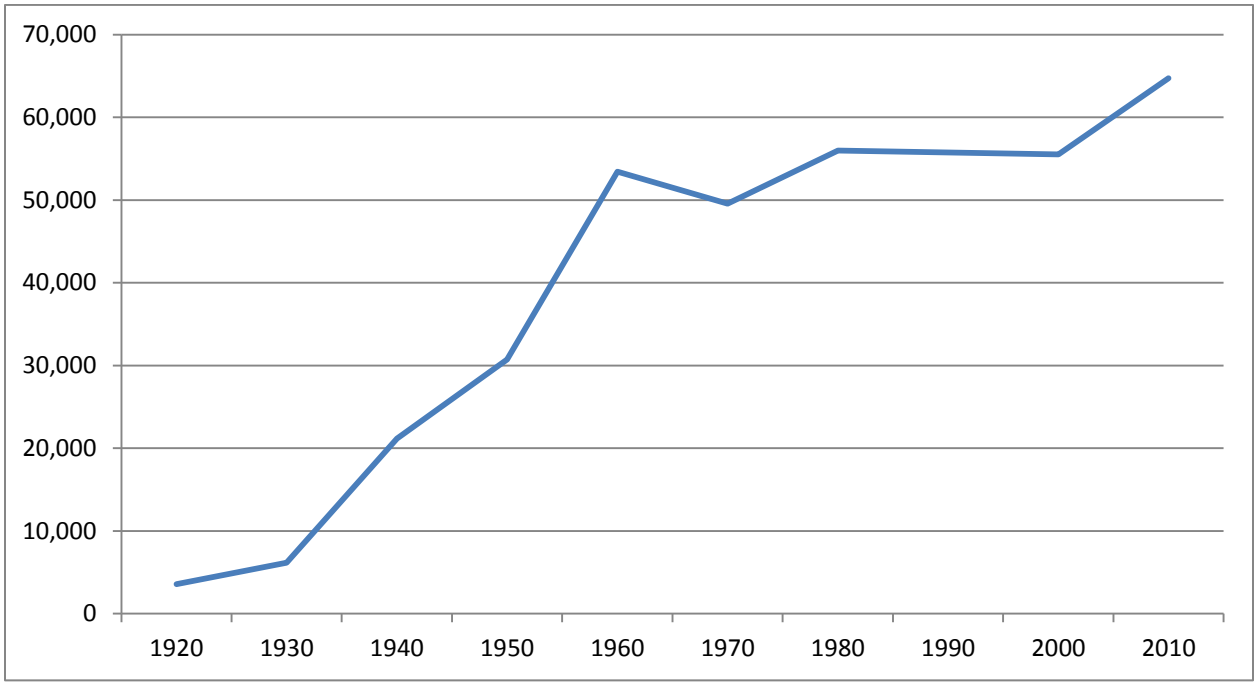
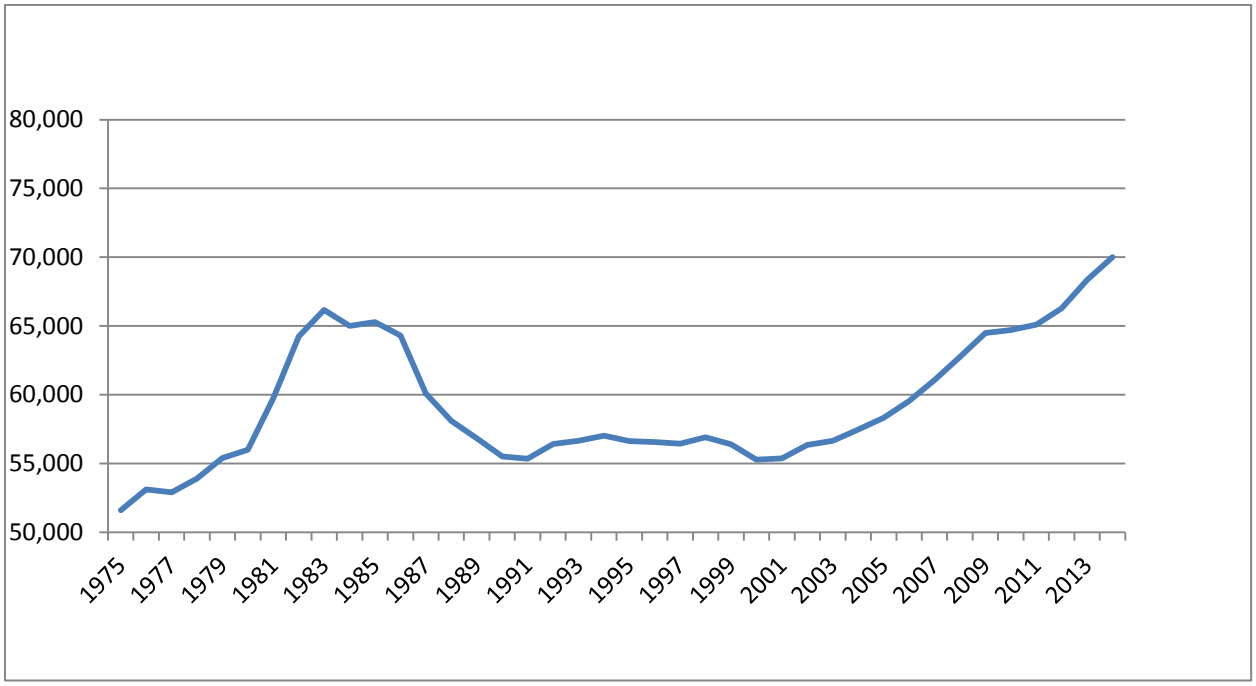


Table 1. Lea County Decennial Population Counts 1920-2010

Year	Population	Ten-Year Growth Rate
1920	3,545	--
1930	6,144	73.30%
1940	21,154	244.30%
1950	30,717	45.20%
1960	53,429	73.90%
1970	49,554	−7.3%
1980	55,993	13.00%
1990	55,765	−0.4%
2000	55,511	−0.5%
2010	64,727	16.60%

Figure 2. Lea County Annual Population Estimates 1975-2014

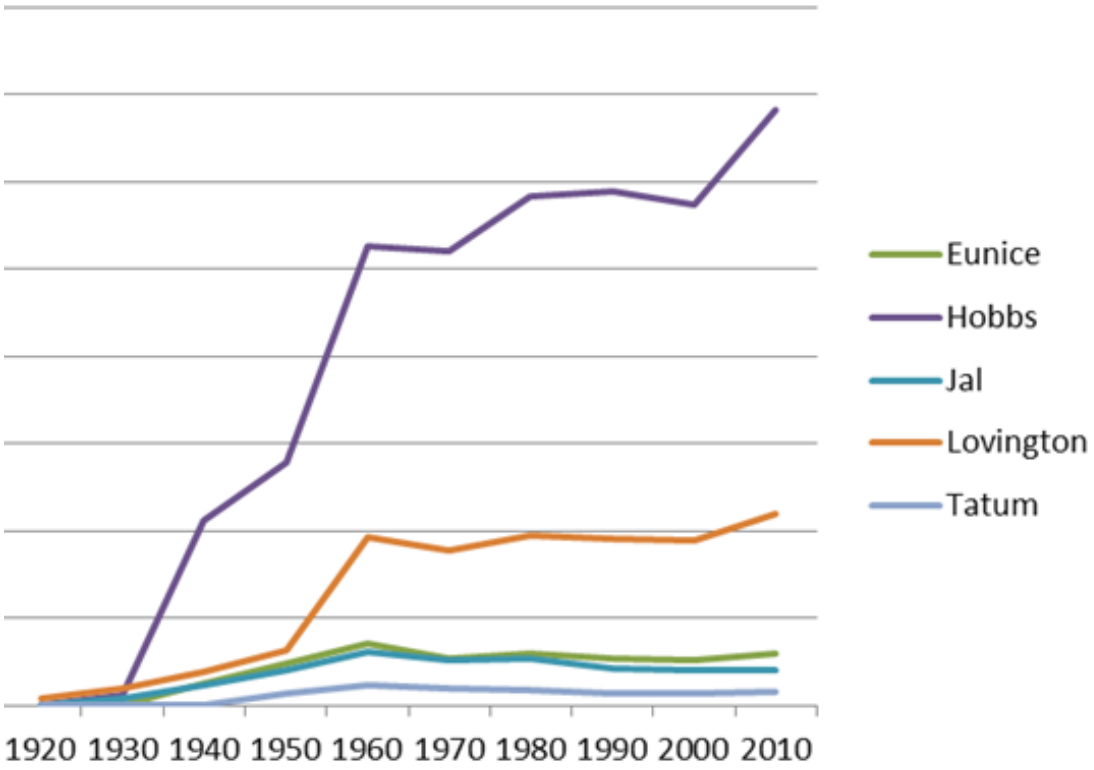


Population Distribution within Lea County

Like much of the United States and the world, the population of Lea County has become increasingly concentrated in incorporated places. **Figure 3** illustrates how the cities of Hobbs and Lovington grew to hold greater and greater shares of the county population. It is important to point out, however, that the official count of these places does not reflect the true nature of these population centers. For example, as the City of Hobbs has grown, much of the expanse has occurred just outside the city's jurisdictional boundaries. According to the 2000 Census, 12,142 people were living in unincorporated Lea County but it is important to consider that when using figure, families living just outside of Hobbs who work, attend school and shop within city limits are classified the same a family living on a ranch 30 miles west of Jal. Therefore, Census County Divisions (CCDs)[6] are used in this report and are recommended in any attempt to describe Lea County's population dynamics below the county level (see **Map 1**).

[6] Census County Divisions (CCD) are delineated by the US Census Bureau in cooperation with local authorities. CCDs are used in 21 states (including New Mexico) where there are no Minor Civil Divisions (MCD) which are legal subdivisions common in eastern states that carve up counties into exhaustive, non-overlapping portions. CCDs also divide a county in the same manner but are only for statistical purposes and have no legal or jurisdictional authority.

Figure 3. Lea County Incorporated Places Population Growth 1920-2010



CCDs were first utilized in New Mexico during the 1970 Census. **Table 2** shows population counts for each of Lea County's five CCDs from 1970 to 2010.[7]

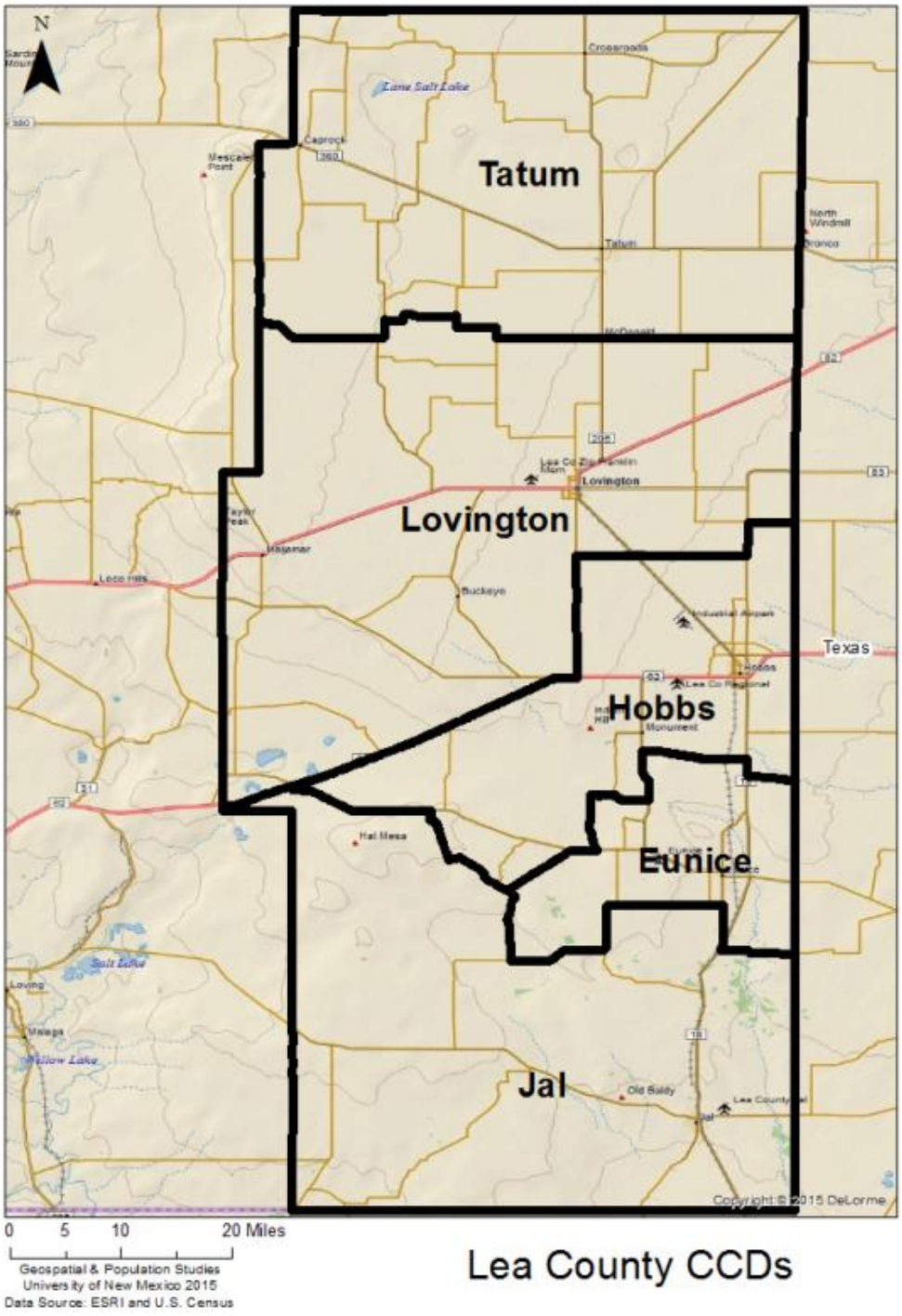
Table 2: Lea County CCD Decennial Population Counts 1970 to 2010

Geography	1970	1980	1990	2000	2010
Eunice CCD	3,282	3,476	3,014	2,896	3,220
Hobbs CCD	27,626	35,331	36,880	36,631	43,305
Jal CCD	3,241	3,228	2,335	2,118	2,175
Lovington CCD	8,915	12,318	12,107	12,534	14,624
Tatum CCD	2,000	1,640	1,429	1,332	1,403
Lea County/Hobbs MSA	49,554[8]	55,993	55,765	55,511	64,727

[7] Population counts from the Census Bureau are for April 1 of each year. Population estimates and projections are for July 1 of each year.

[8] The county total for 1970 does not equal the sum of the five CCDs. In 1970 there were two other divisions of the county known as Lea North Central Division and Lea South Central Division which together had a total population of 4,490. By 1980 these two divisions where merged into the Hobbs and Lovington CCDs.

Map 1. Lea County Census County Divisions



Lea County 2000-2010

In the case of Lea County the best indicator of current or future population trends can be derived from the last two censuses. Therefore, much of the remainder of this analysis will focus on the 2000 and 2010 censuses as the foundation for our population analysis and projections. As seen in **Figure 2**, the population of Lea County remained fairly stable from the late eighties to 2000. Since then there has been steady and significant population growth that relates to rising energy prices and the growth of the local energy industry which took off early in the new century. This steady growth is reflected in both the 2010 census count which saw an increase of 16.6% from 2000 (**Table 3**) and the Census Bureau's annual population estimates which show a gain that averages about 1,000 people per year. This is fairly rapid growth for a rural county that is relatively isolated from major population centers. It is just this sort of growth that necessitates this mid-decade census which will be useful for planning purposes.

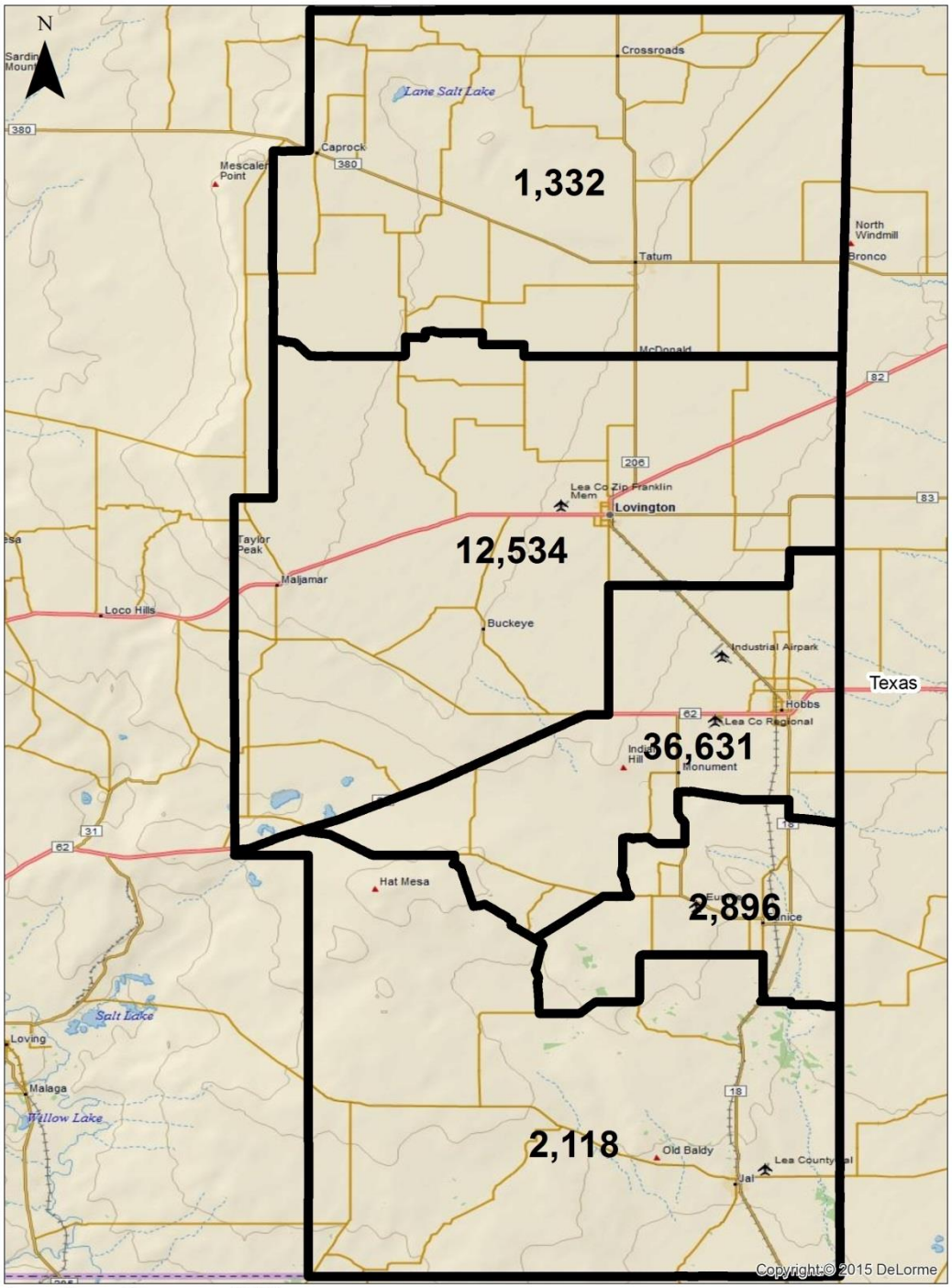
Table 3. Lea County CCD Population Growth 2000-2010

Geography	2000	2010	Ten-Year Growth Rate
Eunice CCD	2,896	3,220	11.19%
Hobbs CCD	36,631	43,305	18.22%
Jal CCD	2,118	2,175	2.69%
Lovington CCD	12,534	14,624	16.67%
Tatum CCD	1,332	1,403	5.33%
Lea County/Hobbs MSA	55,511	64,727	16.60%

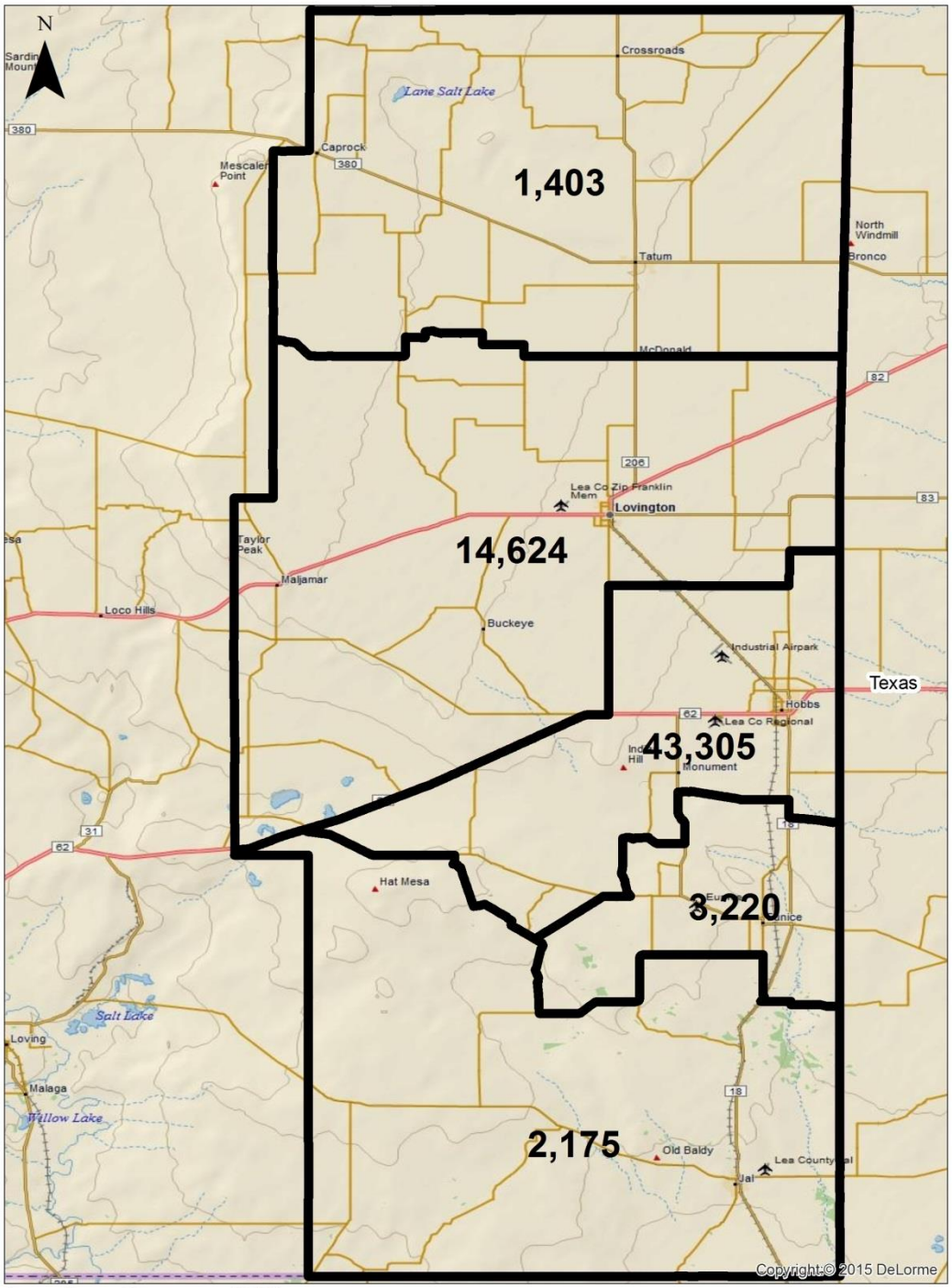
Map 2 shows population counts by CCD for 2000 and **Map 3** shows CCD population counts for 2010. Ten-year growth rates by CCD are depicted in **Map 4**. Ten-year growth throughout the county between 2000 and 2010 was approximatly 16.6%. The Hobbs CCD grew the most at over 18% grabbing the attention of *Forbes* magazine as a potential opportunity for business investment after coming in as the 12th fastest growing small town in America.[9] The Lovington CCD experienced growth similar to the county as a whole (over 16%) while Eunice, though a smaller CCD, grow over 10% as well. The least populated CCDs of Tatum and Jal also grew at 5% and 3% respectively. These figures further demonstrate that people are continuing to move into larger population centers just as they have in the past. This trend is expected to continue into the future.

[9] http://www.forbes.com/pictures/egim45eehm/12-hobbs-nm/

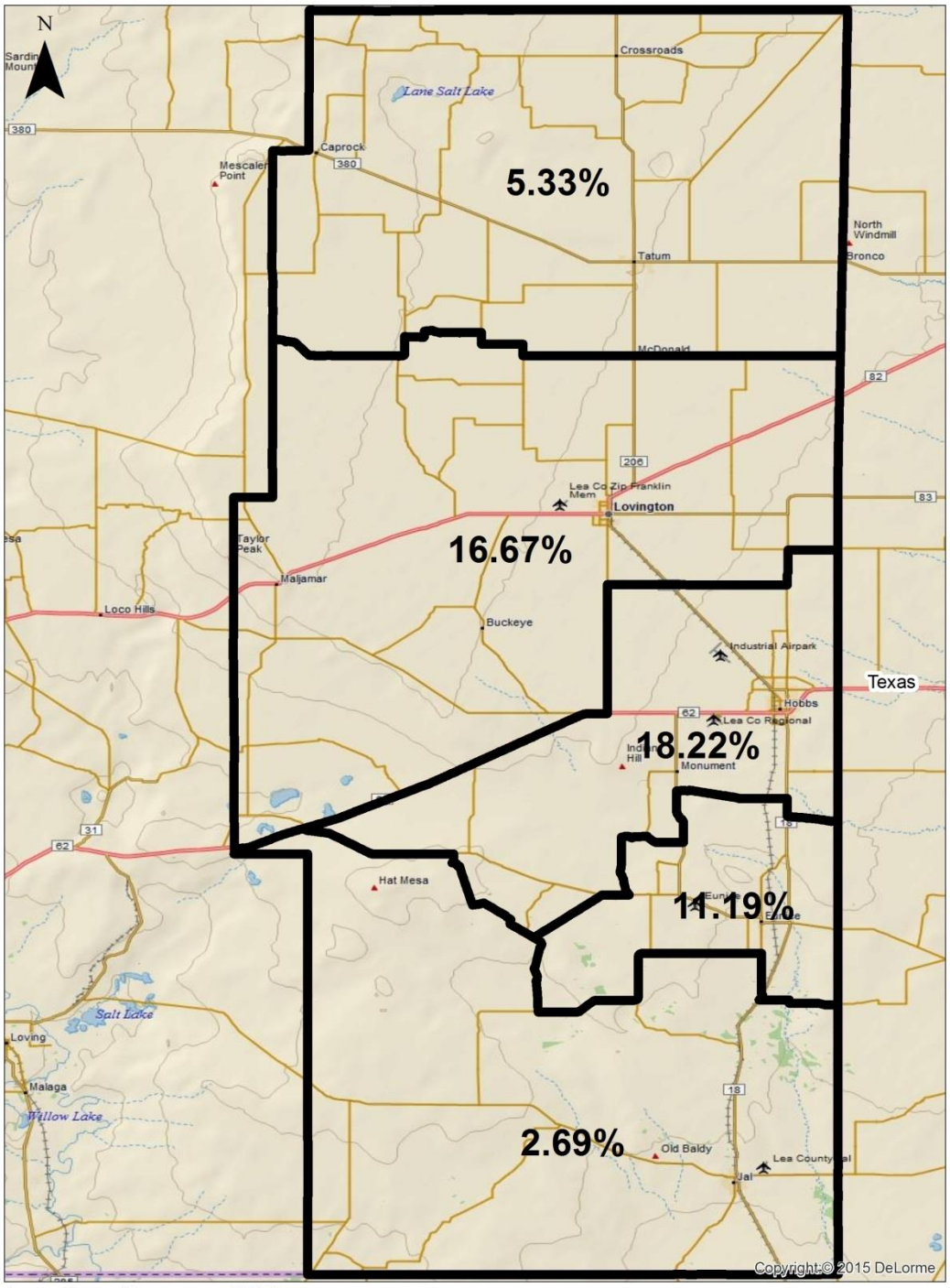
Map 2. Lea County CCD Populations 2000



Map 3. Lea County CCD Populations 2010



Map 4. Lea County CCD Ten-Year Growth Rates 2000-2010



Dynamics of Recent Population Growth

Closer examination of data from the last two censuses reveals two notable changes in the composition of Lea County's population: the growing number of Hispanics and the younger age structure of the population.

Table 4 shows that the Hispanic population of Lea County climbed by 11,053 people between 2000 and 2010 - *an increase of over 50%.* Since the total population increase for the county was only 9,216, this means that the non-Hispanic population actually *decreased* by 1,837 (see **Table 5**). **Table 6** reflects how the recent increase in the Hispanic population follows the same trend experienced over the last five decades. In 1970, Hispanics comprised about 11% of Lea County. From then their numbers grew each decade to about 21%, 30%, 40%, and most recently to 51% of the county population. The increased Hispanic population has been due to both natural increase and a high net in-migration.

Table 4. Lea County Hispanic Population by CCD 2000-2010

Geography	2000	2010	Ten-Year Growth Rate
Eunice CCD	1,072	1,468	36.94%
Hobbs CCD	13,808	21,520	55.85%
Jal CCD	857	1,010	17.85%
Lovington CCD	5,819	8,517	46.37%
Tatum CCD	454	548	20.70%
Lea County/Hobbs MSA	22,010	33,063	50.22%

Table 5. Lea County Non-Hispanic Population by CCD 2000-2010

Geography	2000	2010	Ten-Year Growth Rate
Eunice CCD	1,824	1,752	-3.95%
Hobbs CCD	22,823	21,785	-4.55%
Jal CCD	1,261	1,165	-7.61%
Lovington CCD	6,715	6,107	-9.05%
Tatum CCD	878	855	-2.62%
Lea County/Hobbs MSA	33,501	31,664	-5.48%

Table 6. Lea County Hispanic Population by CCD 1970-2010

Geography	1970	Percent of County	1980	Percent of County	1990	Percent of County	2000	Percent of County	2010	Percent of County
Eunice CCD	419	12.77%	598	17.20%	772	25.61%	1,072	37.02%	1,468	45.59%
Hobbs CCD	2,749	9.95%	6,478	18.34%	9,883	26.80%	13,808	37.69%	21,520	49.69%
Jal CCD	159	4.91%	823	25.50%	812	34.78%	857	40.46%	1,010	46.44%
Lovington CCD	1,483	16.63%	3,653	29.66%	4,742	39.17%	5,819	46.43%	8,517	58.24%
Tatum CCD	238	11.90%	348	21.22%	389	27.22%	454	34.08%	548	39.06%
Lea County/ Hobbs MSA	5,048	11.20%	11,900	21.25%	16,598	29.76%	22,010	39.65%	33,063	51.08%

Examination of the age structure of Lea County in 2000 and 2010 reveals a shift toward a considerably younger population. This trend is related to the increasing Hispanic population which tends to be a younger demographic throughout the United States. The median age of the county was 33.1 in 2000 but fell to 31.9 in 2010. This difference of 1.2 years may not seem like much, but it is in fact a considerable decline for a ten-year period. Much of this shift is due to natural increase (births minus deaths). **Table 7** shows Lea County's population in five-year age groups and their respective ten-year growth rates. Among the most noteworthy groups is the under-five population which grew by almost 40%. The five to nine category also grew considerably at almost 20%. This sort of trend will have a profound impact on the county's five school districts. Conversely, the population 65 and over grew by only 200 people which resulted in the proportional share of this population declining from 12.2% of the total population to 10.8%. The *Hobbs Housing Needs Assessment* from 2015[10] suggested that this decline may be due to a lack of smaller, affordable housing units that some folks downsize into once their children have left the nest or their spouse has passed. This probably only played a very minor role. A more important factor was likely the number of folks moving to retirement communities in West Texas where they have greater access to health care. Growth in the 20-24 (24%), 25-29 (45%) and 30-34 (33%) age categories was also high, but this would be expected because this is the demographic most likely to relocate for employment opportunities. Less easy to theorize is the large growth (52%) of the 55-59 age group and the declines seen in some of the under-65 age categories (10-14, 15-19, 35-39, 40-44).

Dynamics of Recent Housing Unit Growth

The number of housing units in Lea County grew 6.5% from 2000-2010. **Table 8** describes housing unit growth by CCD. **Map 5** shows housing counts by CCD for 2000 and **Map 6** shows CCD housing unit counts for 2010. Ten-year growth rates by CCD are depicted in **Map 7**.

In terms of net housing unit gain most of the growth was in the Hobbs CCD which grew by 7.6% adding 1,159 housing units out of the county's total gain of 1,514. The Eunice CCD grew the fastest in terms of percentage with a gain of over 12% by adding a net of 151 new housing units. Tatum was the only CCD to show a net decline of housing by losing 85 units, a decrease of over 11%. Lovington and Jal CCDs both grew at a rate lower than the county as a whole at a little over 4.5% each.

This is sizable housing growth for Lea County but modest compared with its population growth of 16.6%. In order for the county to house the 9,216 additional people who were added over the ten-year period, the number of persons per household and the occupancy rate of housing units both grew considerably and along trends that cannot be expected to continue. This means that substantially more housing units must be built or the housing market will reach a saturation point and the county's rate of population increase will lower.

[10] City of Hobbs Housing Needs Assessment July 2015, RRC Associates LLC

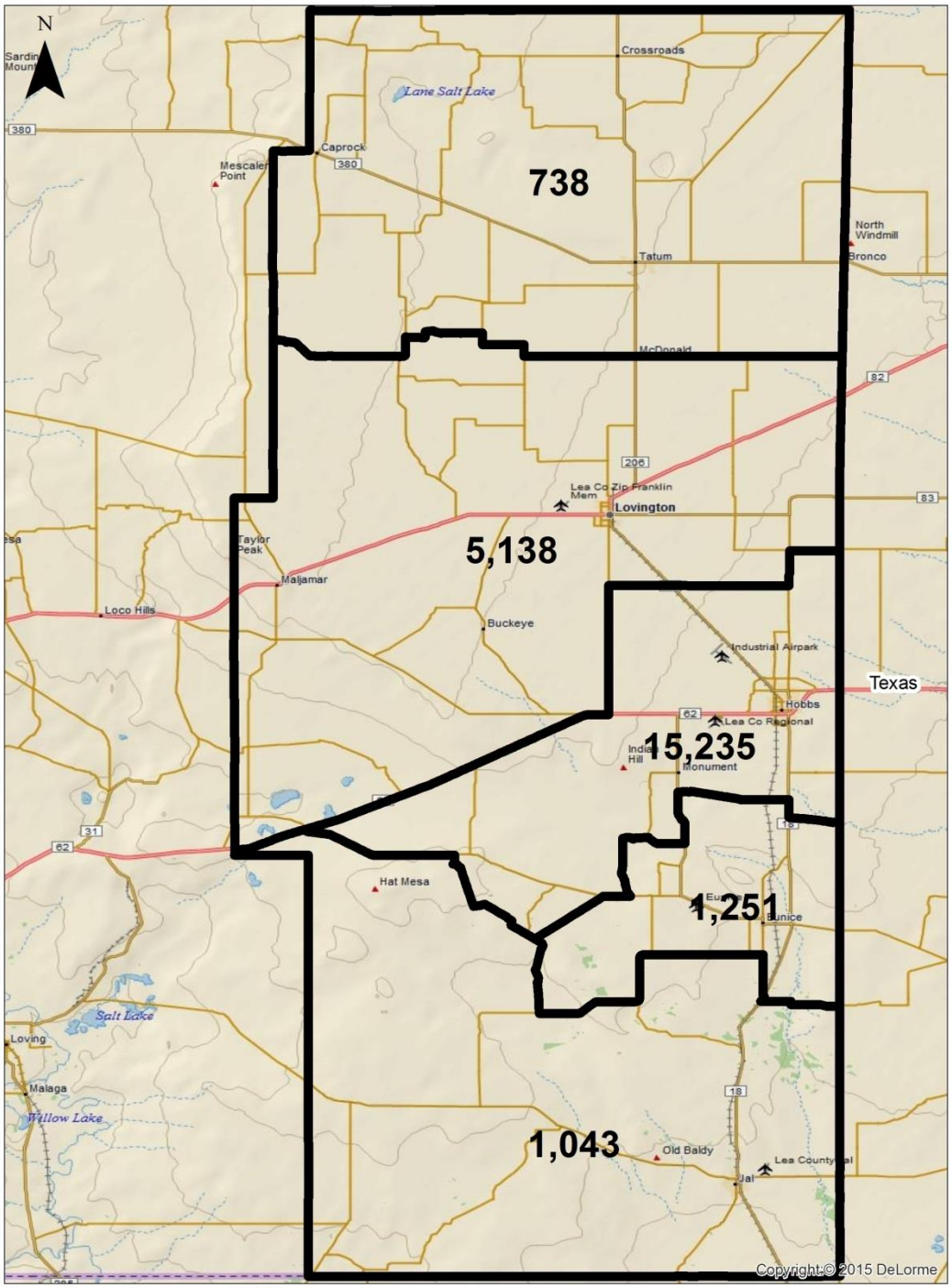
Table 7. Lea County Five-Year Age Groups Growth 2000 – 2010

Age Group	2000	2010	Ten-Year Growth Rate
Total population	55,511	64,727	16.60%
Under 5 years	4,253	5,909	38.94%
5 to 9 years	4,457	5,337	19.74%
10 to 14 years	4,843	4,830	-0.27%
15 to 19 years	5,041	4,901	-2.78%
20 to 24 years	3,710	4,614	24.37%
25 to 29 years	3,399	4,934	45.16%
30 to 34 years	3,419	4,532	32.55%
35 to 39 years	4,104	3,920	-4.48%
40 to 44 years	4,242	3,866	-8.86%
45 to 49 years	3,705	4,222	13.95%
50 to 54 years	3,049	4,232	38.80%
55 to 59 years	2,390	3,624	51.63%
60 to 64 years	2,127	2,815	32.35%
65 to 69 years	2,030	2,055	1.23%
70 to 74 years	1,856	1,726	-7.00%
75 to 79 years	1,364	1,380	1.17%
80 to 84 years	819	1,045	27.59%
85 to 89 years	482	543	12.66%
90 years and over	221	242	9.50%
Under 18 years	16,687	19,028	14.03%
18 to 64 years	32,052	38,708	20.77%
65 years and over	6,772	6,991	3.23%
Median age (years)	33.1	31.9	--

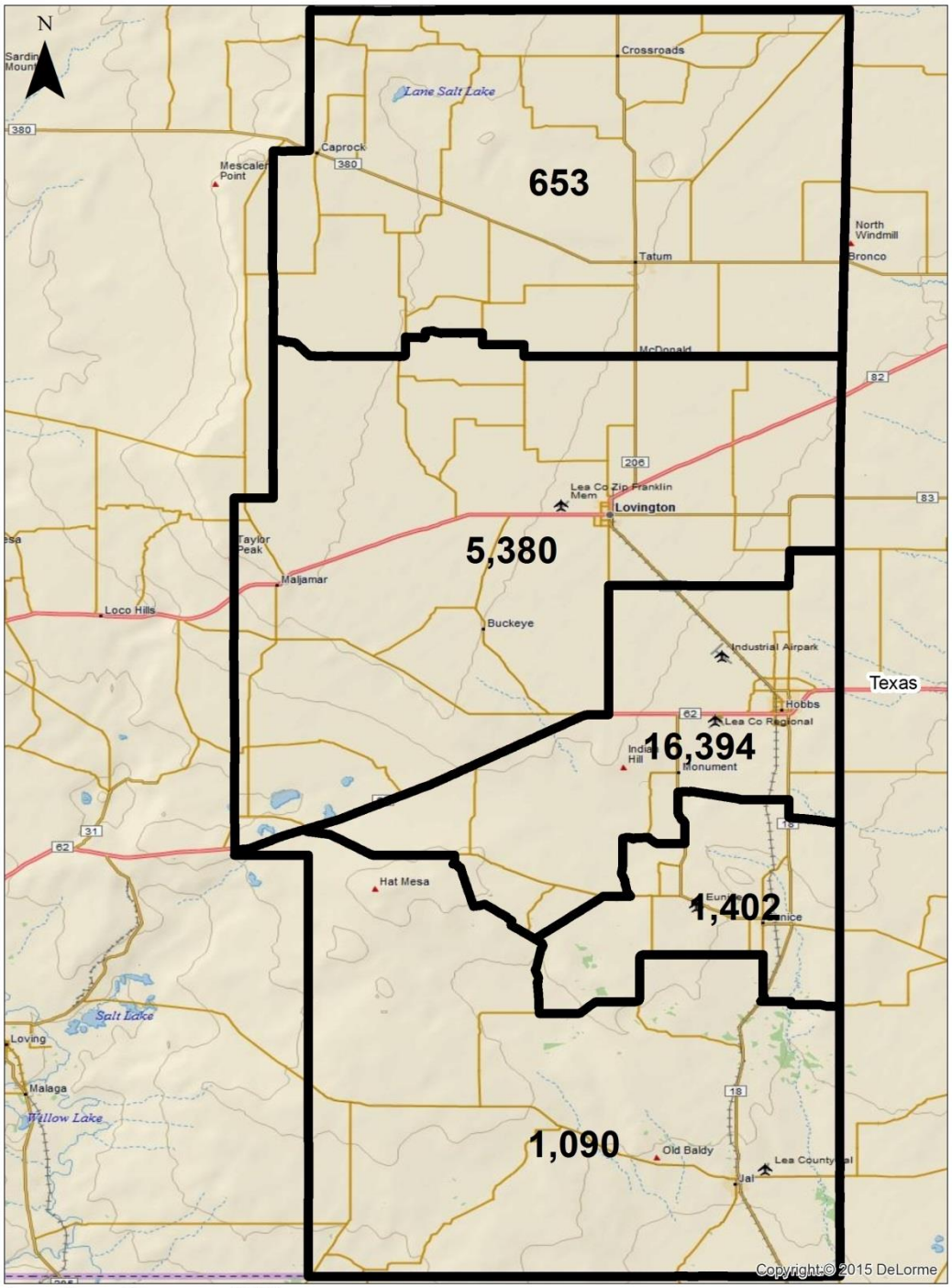
Table 8. Lea County Housing Unit Growth by CCD 2000-2010

Geography	2000	2010	Ten-Year Growth Rate
Eunice CCD	1,251	1,402	12.07%
Hobbs CCD	15,235	16,394	7.61%
Jal CCD	1,043	1,090	4.51%
Lovington CCD	5,138	5,380	4.71%
Tatum CCD	738	653	-11.52%
Lea County/Hobbs MSA	23,405	24,919	6.47%

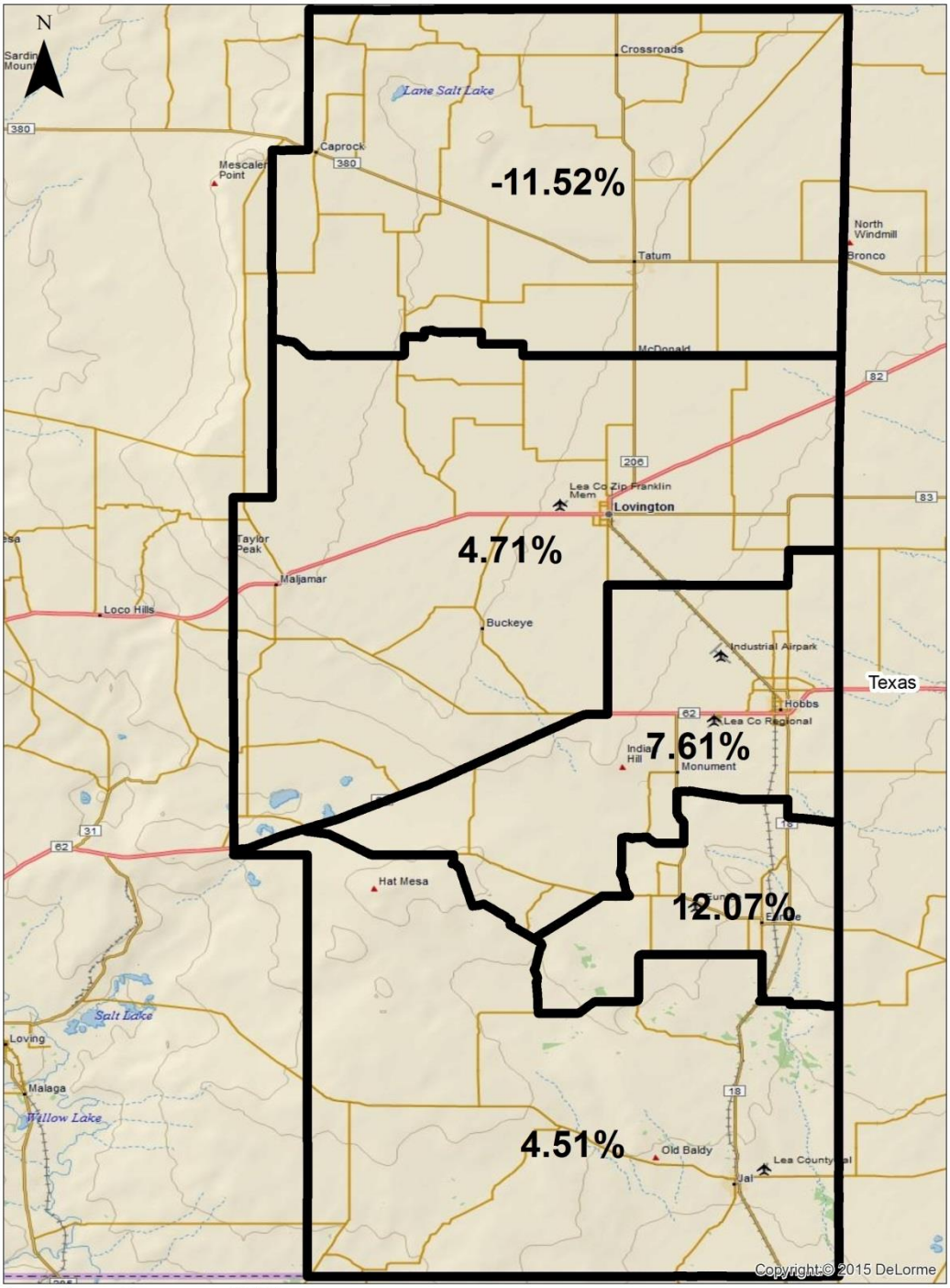
Map 5. Lea County CCD Housing Unit Counts 2000



Map 6. Lea County CCD Housing Unit Counts 2010



Map 7. Lea County CCD Housing Unit Growth



Occupancy rates reflect the number of residential housing units that are inhabited. The corollary of the occupancy rate is the vacancy rate which is the number of residential units that are unoccupied. The occupancy rate plus the vacancy rate always equals one hundred percent. Because almost every locality has some percentage of older, decayed housing units not fit for habitation, and because every locality has some number vacancies due to ongoing turnover, occupancy rates don't often exceed 90%. As shown in **Table 9** the occupancy rate for Lea County in 2010 was 89.2%. This is only slightly above the national rate (88.6%) and the rate for New Mexico (87.8%), but a considerable increase from 2000 when the county was at 84.2% occupancy. The town of Tatum's occupancy rate grew by 14% which explains how its population grew even though the number of housing units declined considerably. Hobbs and Lovington's occupancy grew by about 5% while Jal increased by 1.5% and Eunice by just 0.2%.

Table 9. Lea County Occupancy Rates by CCD 2000-2010

Geography	2000	2010
Eunice CCD	85.00%	85.20%
Hobbs CCD	84.90%	90.20%
Jal CCD	76.30%	77.80%
Lovington CCD	85.50%	90.10%
Tatum CCD	70.20%	84.20%
Lea County/Hobbs MSA	84.20%	89.20%

These occupancy rates should be viewed in a larger context. First, the age of a locality's housing stock must be considered. A windshield survey of Lea County reveals that like in many rural communities, a number of older housing units would need considerable rehabilitation in order to be habitable. Indeed, **Figure 4** shows that a large majority of homes were built between 1950 and 1989. Second, as detailed in the *City of Hobbs' Housing Needs Assessment* from 2015, housing availability in Hobbs (which houses two-thirds of the county population) is very low. This is particularly true with regards to rental units. Therefore, the county's occupancy rate should be considered quite high and nearing a saturation point. Indeed, the American Community Survey, the largest annual sample survey regularly conducted in the United States, tells us that Lea County's occupancy rate is stabilizing at about 90%.

The number of people living in each occupied housing unit has also experienced notable growth from an average household size of 2.73 in 2000 to 2.82 in 2010 (**Table 10**). This is greater than the national average of 2.58 and the New Mexico state average of 2.55. Lea County's growing Hispanic population is an integral factor in this increase. Census figures tell us that throughout the United States, Hispanics typically average a larger number of persons per household compared with the non-Hispanic population. Lea County currently has the third highest persons per household in the state behind only San Juan and McKinley Counties, both of which have large Native American populations – the only demographic to have more persons per household than Hispanics.

Figure 4. Age of Housing Units in Lea County by Decade

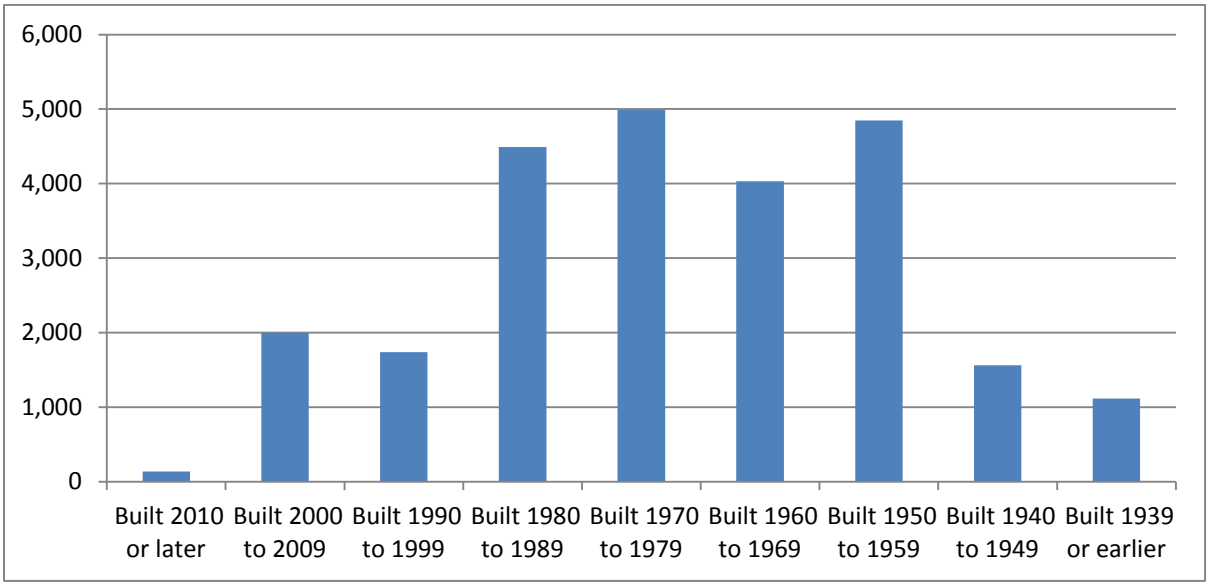


Table 10. Lea County Persons per Household by CCD 2000-2010

Geography	2000	2010
Eunice CCD	2.72	2.70
Hobbs CCD	2.71	2.81
Jal CCD	2.66	2.56
Lovington CCD	2.80	2.95
Tatum CCD	2.57	2.55
Lea County/Hobbs MSA	2.73	2.82

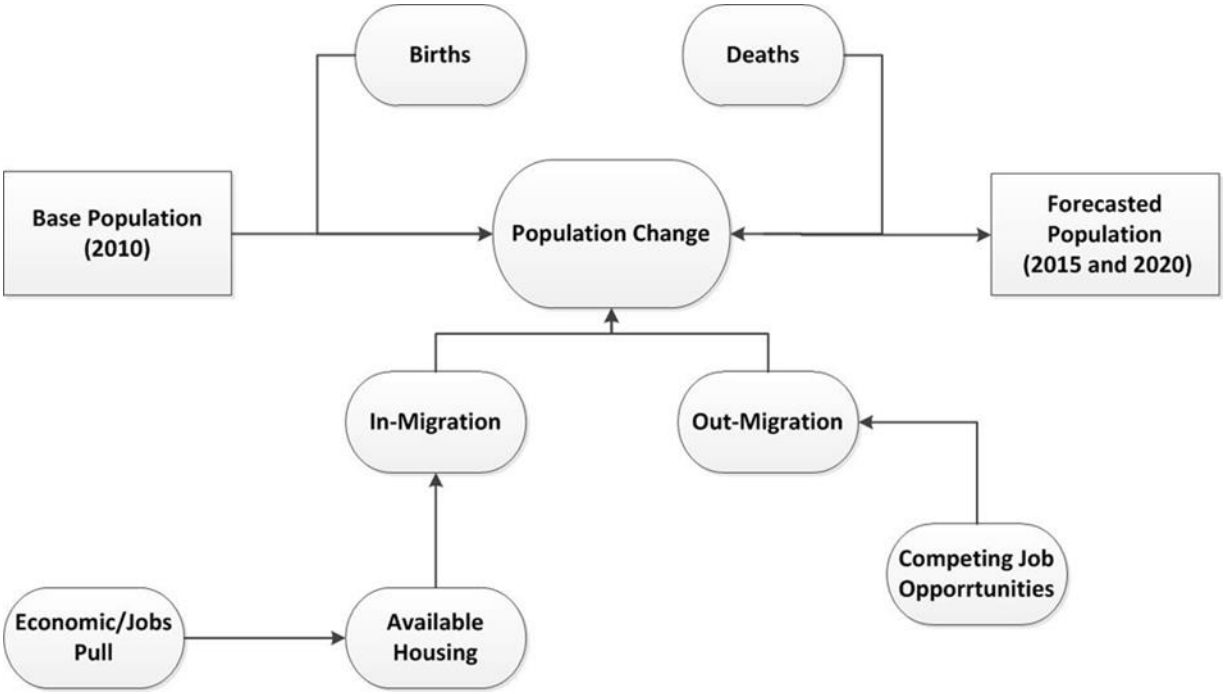
All of the increase in persons per household was in the Hobbs and Lovington CCDs. Eunice, Jal and Tatum each saw a decrease, but together these three CCDs make up only 10% of the county population. Unlike with the occupancy rate, the American Community Survey indicates the persons per household continues to grow and that by 2014 it had reached 3.09 – well above state and national averages.

These housing trends play an important factor in our population projections and will be revisited in the final section of this report.

Lea County 2010 - 2014

A thorough door-to-door census is an expensive endeavor. The 2010 United States census cost over $10 billion to conduct. Waiting ten years for the next census, however, can make community planning difficult which is why annual population estimates are so useful. Estimates provide a way to approximate population changes so that governments can adjust expenditure and plan accordingly. A dynamic model of population change is illustrated in **Figure 5**.

Figure 5. Dynamic Model of Population Change



Estimating population is simple in theory and can be expressed with the following equation:

Current Population = Population from the Previous Census + Natural Increase + Net Migration

Natural Increase equals births minus deaths and Net Migration equals in-migration minus out migration. Calculating natural increase is straightforward. Birth and deaths are captured by the New Mexico Department of Health[11] who record not just where births and deaths occur but more importantly the county of residence of the person involved. If a birth is given in another state, this information is ultimately shared by various state health agencies. Also, if a person dies outside their home county, state or even country, this information is shared as well. This process is thorough and complete enough (though shy of 100%) that it is more like a count than an estimate.

[11] NM DOH data is available at https://ibis.health.state.nm.us/

Capturing migration is the difficult part of the equation although there are proven techniques for obtaining accurate estimates. One key is to gather as many indicator datasets as possible. The University of New Mexico Geospatial and Population Studies Department considers all of the following when estimating populations.

American Community Survey – This is largest sample survey in the United States. Conducted by the United States Census Bureau on a continuous basis, over two million households a year complete the lengthy questionnaire.

Current Population Survey – Every March the Census Bureau and the Bureau of Labor Statistics conducts the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS) which questions respondents on a number of employment related topics including relocation within the last year.

Building Permits – Residential building permits, whether for single family units, multifamily units or manufactured homes, are an excellent indicator of population growth. Hobbs is the only place in Lea County to issue their own building permits. The remainder of the county receives permits from the Construction Industries Division of the New Mexico Regulation and Licensing Department. Building permits will be discussed further in the Population Projections section of this report.

Group Quarters – UNM GPS regularly tracks changes in the states Group Quarter population (e.g. college dormitories, nursing homes, and correctional facilities). No significant change is expected to Lea County's population although one new nursing home was opened in Hobbs in 2015.

IRS Migration Files – In conjunction with the Census Bureau, the Internal Revenue Service provides annual county migration files for the entire United States. When a taxpayer files a return in a county different from the one they filed in one year ago, it is assumed that they and their dependents have moved to this new county. Not everyone files taxes of course, but this does provide a good indication of trends. The US Census Bureau uses only these files along with Medicare enrollment data in order to estimate migration.

Medicare Enrollment Data – Because most Americans 65 and older are enrolled in Medicare, the number of people in each county who participate in this program offers an excellent indication of change in this cohort.

Military Data – The Defense Manpower Data Center provides figures for military populations and their families. Since there are no military installations in Lea County, this is not applicable.

MVD Licenses – The number of New Mexico Motor Vehicle Division issued in each county by residence is another good indication of migration trends.

School Enrollment Data – Tracking annual school enrollment figures from the New Mexico Public Education Department gives a sound indication of the population between 5-17 years of age. From this age group the remainder of the population can be inferred.

USPS Vacancy Files – Each quarter the United States Postal Service, in conjunction with the United States Department of Housing and Urban Development, provides data that indicate the number of vacant housing units that letter carriers are aware of. These data are limited and problematic for many reasons, but do shed light on changing housing dynamics.

Voter Registration Records – The New Mexico Secretary of State's office tracks voter registration data for each county. These data, viewed in the context of election cycles and the effect that has on registrants, are yet another indicator of population change.

Estimates from both UNM GPS and the US Census Bureau show that Lea County continues to experience strong growth well above what is being seen throughout the rest of New Mexico. **Table 11** shows population estimates and average growth rates using data from 2010-2014 from both organizations. **Table 12** shows the same data for the state of New Mexico. Lea County's cumulative growth from 2010-2014 was 7.27% which makes it the fastest growing county in the state ahead of neighboring Eddy County (2nd fastest growing) and Curry County (3rd fastest growing). Cumulative growth for the state from 2010-2014 is at just 1.3% with only eleven of thirty-three counties experiencing growth. **Figure 6** compares annual growth rates for Lea County and New Mexico.

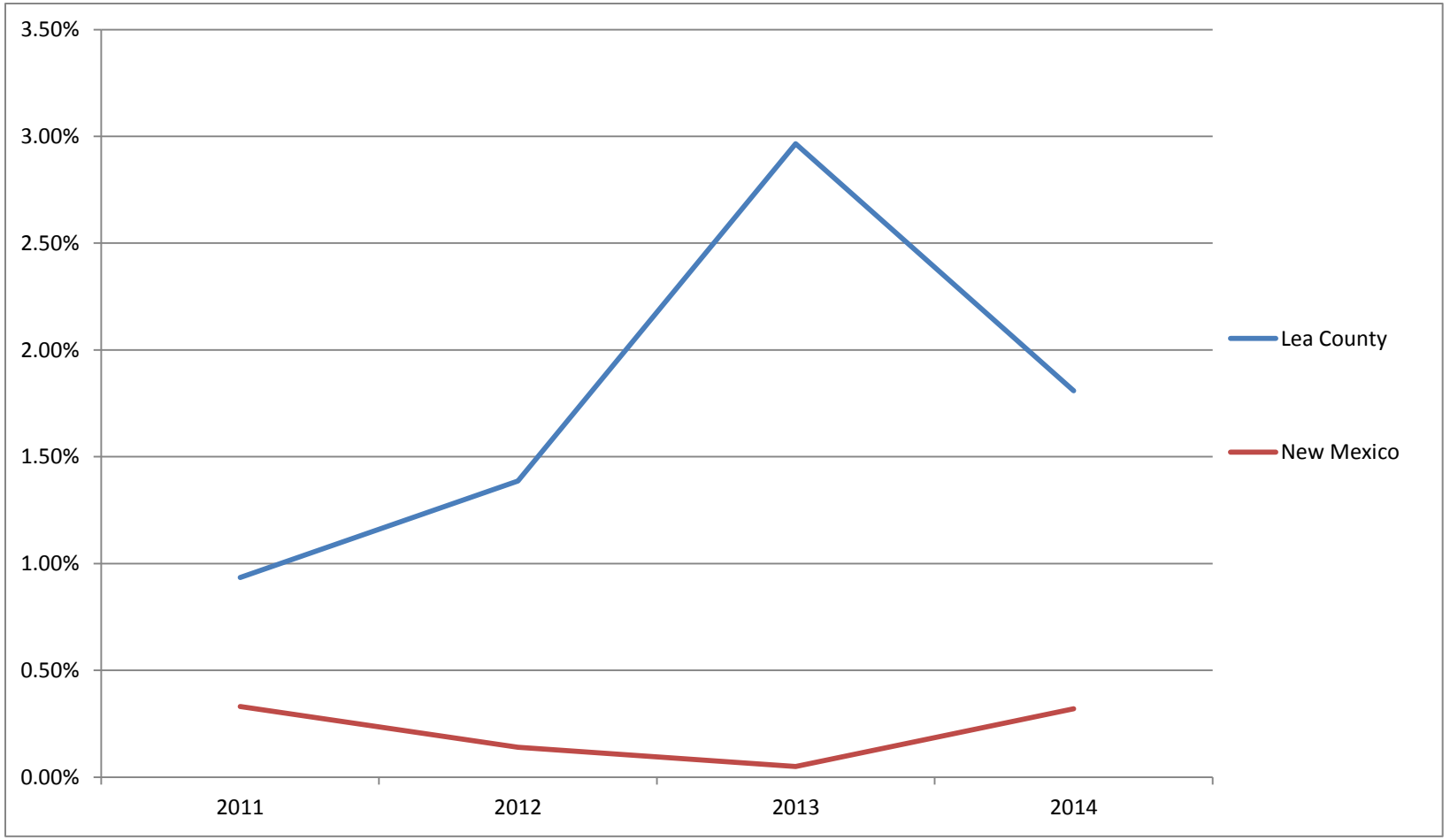
Table 11. Lea County Population Estimates 2010-2014

Year	**2010**	**2011**	**2012**	**2013**	**2014**
Census Estimates	64,644	65,103	66,286	68,347	69,999
GPS Estimates	64,940	65,692	66,322	68,193	69,011
Average of Estimates	64,792	65,398	66,304	68,270	69,505
Average Growth Rate	--	0.93%	1.39%	2.97%	1.81%

Table 12. New Mexico Population Estimates 2010-2014

Year	**2010**	**2011**	**2012**	**2013**	**2014**
Census Estimates	2,064,950	2,078,407	2,084,594	2,086,895	2,085,572
GPS Estimates	2,065,195	2,083,725	2,091,432	2,095,159	2,098,380
Average of Estimates	2,065,073	2,081,066	2,088,013	2,091,027	2,091,976
Average Growth Rate	--	0.77%	0.33%	0.14%	0.05%

Figure 6. Annual Growth Rates for Lea County and New Mexico 2010-2014



Because Lea County is in many ways tied to West Texas, **Table 13** compares population estimates for five bordering counties.[12] Clearly, the recent population changes in Lea County correlate more closely with population changes in Texas than in New Mexico. Due to similar economic structures, this would be expected.

Table 13. Population Estimates for Five Texas Counties 2010-2014

Geography	2010	2011	2012	2013	2014	2010-2014 Growth
Andrews County, Texas	14,835	15,393	16,119	16,808	17,477	17.81%
Cochran County, Texas	3,139	3,071	3,017	2,995	2,935	-6.50%
Gaines County, Texas	17,572	18,064	18,452	18,965	19,425	10.55%
Winkler County, Texas	7,084	7,146	7,344	7,624	7,821	10.40%
Yoakum County, Texas	7,835	7,971	8,018	8,160	8,286	5.76%
Five County Total	50,465	51,645	52,950	54,552	55,944	10.86%
State of Texas	25,146,104	25,245,717	25,657,477	26,094,422	26,505,637	5.41%
Lea County/Hobbs MSA	64,792	65,398	66,304	68,270	69,505	7.27%

Components of Growth

As described above, population change comes from two components: natural increase and net migration. Here we breakdown trends in these two broad categories. **Table 14** shows the number of births and deaths in Lea County as recorded by the New Mexico Department of Health. Natural increase was highest in 2008 (845) and has since returned to about 600 persons per year. As describe earlier, migration is much trickier to accurately capture. Using data from the Census Bureau **Table 15** illustrates how variable migration can be from year to year. Migration was highest from 2012-2013 when it was 1,382 persons and second highest in 2008-2009 when it was 1,124. 2009-2010 (-403) and 2009-2010 (-78) show losses according to these data, but it is important to remember that migration data are estimated and these losses may be reflecting overestimates from previous years.

Because both components vary from year to year identifying trends isn't straightforward. **Table 16** groups Lea County's population growth into five-year categories. Since we will be projecting the population out another five years, this table will serve as the foundation for one of our projection methods. From this table we can see that population growth averaged about 800 persons a year from 2000-2004 and increased to over 1,000 persons a year from 2005-2014. Similarly, natural increase was averaging about 450 persons per year from 2000-2004 but rose considerably to about

[12] There are in fact six counties in Texas that share a border with Lea County. Loving County, the least-populated in the United States, is not included because at a population of just 82 people, any change has large statistical significance yet does not offer good insight into changes in Lea County.

700 persons per year from 2005-2014. When averaged over five years we see that migration in Lea County is stable at about 1,700 persons every five years which equals about 350 person per year. Prior to this analysis we would have expected to see more of a gradual uptick in migration over the last ten years.

Table 14. Natural Increase in Lea County 2000-2010

Year	Births	Deaths	Natural Increase
2000	872	465	407
2001	901	515	386
2002	907	447	460
2003	959	454	505
2004	925	427	498
2005	1,046	491	555
2006	1,126	518	608
2007	1,226	471	755
2008	1,230	385	845
2009	1,202	427	775
2010	1,044	532	512
2011	1,063	490	573
2012	1,161	533	628
2013	1,200	520	680
2014	1,139	552	587

Table 15. Net Migration in Lea County 2000-2014

Years	Net Migration
2000-2001	-309
2001-2002	554
2002-2003	-137
2003-2004	323
2004-2005	382
2005-2006	643
2006-2007	844
2007-2008	942
2008-2009	1,124
2009-2010	-403
2010-2011	-78
2011-2012	572
2012-2013	1,382
2013-2014	916

Table 16. Five-Year Components of Change in Lea County 2000-2014

Component of Growth	2000-2004	2005-2009	2010-2014
Five-Year Population Growth	3,891	5,325	5,112
Births	4,564	5,830	6,479
Deaths	2,308	2,292	3,092
Natural Increase (Births Minus Deaths)	2,256	3,538	3,387
Migration (Growth Minus Natural Increase)	1,635	1,787	1,725

A Final Key Consideration: These population estimates and the population projections in the next section are made based on a person's residence, just as census counts are. This is otherwise known as the *De Jure* population and differs from the *De Facto* population which measures where a person is on a given day rather than where they call home. The current effort was scoped and proposed as a census "update." As such, the idea is to model and forecast population change using resident-based criteria. Discussions with local stakeholders have suggested that many other persons are present within the county on a given day—especially within the City of Hobbs. A de facto population estimate or projection requires an entirely different process that involves monitoring all traffic coming in and out of the county. A de jure population estimate would still be a required starting point for a de facto population estimate.

Lea County 2015-2020

In this section we will project the population of Lea County and its five CCDs from 2015 to 2020. It is important to note that just like predicting the stock market, a sporting match or the weather, population projections are not a statement of what *will* happen, but rather a statement of what is *most likely* to happen. With that in mind, UNM GPS has decades of experience projecting populations in New Mexico with exceptional accuracy. Projections were run using a variety of methodologies with the three most probable models incorporated into an average that is used as our final projection.

Projecting populations is an objective, mathematical process. However, there are some assumptions that must be made which can impact the results. Key assumptions are outlined here.

1. **Natural increase will continue along historic trends** – given the current age structure of Lea County and the recent fertility rates of both the Hispanic and non-Hispanic populations, we can expect the number of annual births to continue to be around 1,100 -1,200 annually over the five-year projection horizon. Due to the increased population of the county, the number of deaths should continue to slowly climb and there will most likely be somewhere around 550-600 annual deaths in the five-year period form 2015-2020. Therefore, natural increase will remain at around 600 persons annually equating

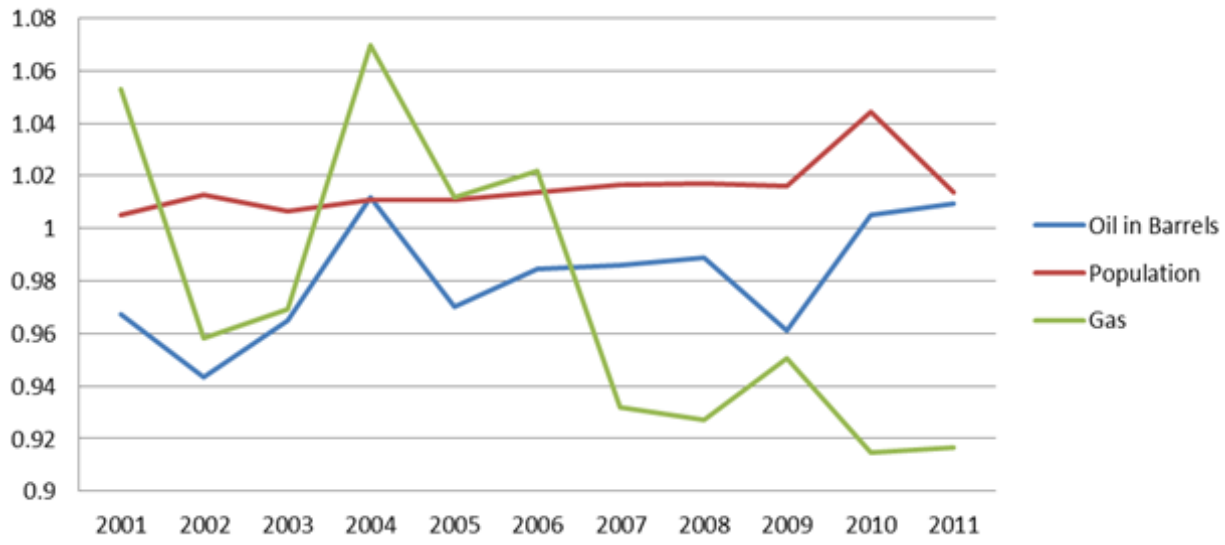
to an increase of 3,000 people by 2020. This means that if the county has zero net migration (a purely theoretical scenario), the population will be about 73,000 by 2020.

2. **The local economy will continue to grow even at lower energy prices** – energy prices have dropped considerably since the preliminary research for this report began. Nonetheless in light of the economic forecast in this report and conversations with local stakeholders, we feel that the economy in Lea County is strong enough and robust enough that a "bust" cycle is not anticipated.

3**. Net in-migration will continue** – due to the economic forecast, and because of the depressed economy in the rest of the state, Lea County will continue to see net in-migration as people seek employment opportunities in several sectors of the economy. We therefore expect to see a population larger than the 73,000 projected due strictly to natural increase.

4. **There is no *measurable* correlation in the short term between oil and gas production or prices and population growth** – while logic and anecdote tell us that energy prices and their impact on local production effect population dynamics, we could not quantify this relationship (see **Figure 7**[13]). Population dynamics are simply not as volatile as energy prices over a five-year period, and we therefore will not be using an economic-demographic model in our projections.

Figure 7. Annual Change in Oil/Gas Production and Lea County Population 2000-2010



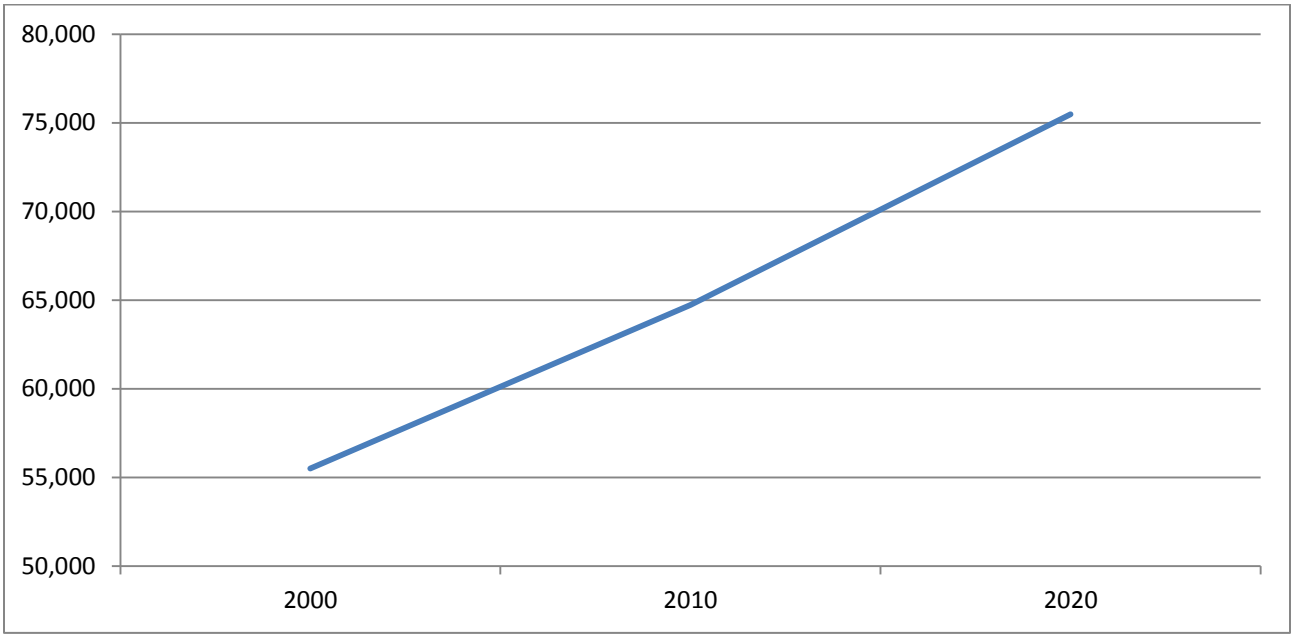
[13] Sources: Oil and gas production: ERS/USDA, summaries of state level statistics on Production. Population: Annual Population Estimates, Geospatial and Population Studies. http://gps.unm.edu.

Projection Models

Basic Trend Analysis

Projection models range from very simple to incredibly complex.[14] In many instances it is the most basic model that will be the most accurate. For some places, like the current situation in Lea County, if there is insufficient reason to think that recent dynamics have changed, then a simple linear extrapolation is often the most accurate projection model. Given that the population of Lea County was 55,511 in 2000 and rose to 64,727 in 2010 we can say that the ten-year geometric growth rate for the county was approximately 16.6%. Should this trend continue, and indications are that it will, we can expect the 2020 population of Lea County to be about 75,473. **Figure 8** illustrates the simplicity of this model. This projection also serves as a good reference to check the validity of other projection methods. If other models deviate too much from this figure, we can assume that there is either an error or the model may be inappropriate.

Figure 8. Basic Trend Analysis Projection Model



[14] Smith, Tayman and Swanson. *State and Local Population Projections: Methodology and Analysis*. New York: Kluwer Academci/Plenum Publishers. Print 2001.

Components of Change Model

This model adds a few layers of sophistication to the basic trend analysis above. **Table 17** builds upon **Table 16** by adding a column that projects both trends in natural increase and migration that were seen over the last ten years. This model also accounts for the relative stabilization of population dynamics seen in the middle of the 2000-2009 decade. As we might expect, we see a 2020 population of 75,058 which is similar to the first model's projection of 75,473.

Table 17. Components of Change Projection Model

Component of Growth	2000-2004	2005-2009	2010-2014	2015-2019
Five-Year Population Growth	3,891	5,325	5,112	**5,219**
Births	4,564	5,830	6,479	
Deaths	2,308	2,292	3,092	
Natural Increase (Births Minus Deaths)	2,256	3,538	3,387	**3,463**
Migration (Growth Minus Natural Increase)	1,635	1,787	1,725	**1,756**

Cohort-Component Model

The cohort-component model is the most widely used demographic projection model. A cohort is group of people who share similar demographic characteristics. For this projection the population of Lea County was broken into five-year age groups by sex. A component of change (births, deaths, and migration) is then applied to each cohort using a program written in the R programming language. First, a survival rate is applied to each age group using mortality rates from the New Mexico Department of Health. Then a migration rate is applied to each age group. Finally, the number of anticipated births based on the number of women age 15-44 is added. Using this method we arrive at a 2020 population for Lea County of 77,035. At first glance this seems a bit high and is indeed higher than the previous methods and any growth that has been experienced in the recent past. Nonetheless, given the county's younger Hispanic population with their propensity for high fertility rates, and the continued migration into the county, it is not an unreasonable figure.

Average of Three Methods

In order to minimize error from any one projection method it is good practice to average two or more methods to arrive at a final projection as seen in **Table 18**.

Table 18. Average of Three Projection Models

Method	Projection
Linear Trend Extrapolation	75,473
Components of Change	75,058
Cohort-Component	77,035
Average of Three	**75,855**

Given the annual economic growth projection from this report of about 1%, the annual population growth projection of about 1.6% appears valid.[15] This sort of annual growth is greater than anything anticipated elsewhere in the New Mexico, but as outlined earlier, the economy and culture of Lea County is very closely tied with West Texas. Population projections from the Texas State Data Center[16] can serve to validate our Lea County projections and shed light on demographic growth anticipated in neighboring counties with similar dynamics. This is highly relevant to this study since economic conditions and demographic changes in West Texas will certainly have an impact in Lea County.

Table 19 shows 2010 population counts, 2020 population projections, and projected ten-year growth rates for five neighboring counties in Texas as well totals for these five counties and the entire state of Texas. We see the growth rates projected in Texas are quite similar to what we expect to see in Lea County which further validates our projections.

It is important to note that the Texas State Data Center uses different methodologies and assumptions then UNM GPS. Using different methods could yield considerably different results than what we see here. These projections were also done by the Texas State Data Center using one methodology for all 256 counties in the state and were not done with the individual level of research and investigation done in this report for Lea County.

[15] There is not a one-to-one relationship between economic growth and population growth as the relationship is much more complicated and involves a number of competing factors including economic and population dynamics in the region and the country as a whole.

[16] http://osd.texas.gov/Data/TPEPP/Projections/ - three projection scenarios are offered by the Texas State Data Center. Here we use their 0.5 migration scenario which they recommend as the most likely to occur.

Table 19. Population Projections for Five Texas Counties 2010-2020

Geography	2010	2020	Ten-Year Growth Rate
Andrews County, Texas	14,835	16,987	14.51%
Cochran County, Texas	3,139	3,503	11.60%
Gaines County, Texas	17,572	20,805	18.40%
Winkler County, Texas	7,084	8,039	13.48%
Yoakum County, Texas	7,835	9,191	17.31%
Five County Total	50,465	58,525	15.97%
State of Texas	25,146,104	28,813,282	14.58%
Lea County/Hobbs MSA	64,727	75,058	15.96%

Using a shift-share method with data from the 2000 and the 2010 census, the population projection for Lea County was distributed among the five CCDs in **Table 20**. Minor adjustments were made in the cases of the Jal CCD since economic activity in the south part of the county suggests more growth compared with the previous decade. It is important to note that as we move to smaller and smaller geographies (from Lea County, Hobbs CCD, Lovington CCD, Eunice CCD, Jal CCD and Tatum CCD) the level of uncertainty and likelihood of inaccuracy increases. Put another way, it is more likely that when the 2020 census data are released, the percentage of error for the Tatum CCD (the smallest geography here) will likely be greater than for Lea County as a whole (the largest geography here).

Table 20. Lea County 2020 Population Projection by CCD

Geography	2000	2010	2015	2020
Eunice CCD	2,896	3,220	3,412	3,574
Hobbs CCD	36,631	43,305	47,349	51,444
Jal CCD	2,118	2,175	2,202	2,298
Lovington CCD	12,534	14,624	15,886	17,077
Tatum CCD	1,332	1,403	1,442	1,462
Lea County/Hobbs MSA	55,511	64,727	70,291	75,855

The Housing Constraint

Not factored into the above projections is the number of housing units that are necessary in order to accommodate the projected rise in population of over 5,000 people over the next five years. Factoring projected housing unit growth into a population projection is impractical unless one is working within a community that already has in place plans for housing development. It is therefore necessary to consider where the projected increase in population is going to live and if a lack of housing will constrain this projection. As we have seen earlier in this report, the existing housing stock in Lea County is approaching a saturation point. Much of the population growth over the last 10 to 15 years has been into existing housing units. Because occupancy rates and average persons per household in the county are already inflated, these increases cannot be expected to continue and new units must either be built or manufactured homes must be placed within the county if this projection is to actualize. To further illustrate the need for housing growth we will estimate how many new housing units would be necessary to accommodate the projected population of 75,855. To do this, some assumptions must first be made.

According to the 2010 Census there was an average of 2.82 persons per occupied housing unit in Lea County. This is already a high figure as the national average is just 2.56. Estimates from the American Community Survey from 2011 to 2014 indicate that this figure has increased to around 3.0. Much of the new construction in Hobbs is in multifamily apartment units which generally have a lower average persons per household compared with single family units. Therefore, a generous assumption for 2020 is that persons per household will remain at 3.0.

According to the 2010 Census the occupancy rate for residential housing units in Lea County was 89.2%. Rates from the American Community Survey have varied considerably between 2010 and 2014 (though not much when the margin of error is considered). Given the age of the existing housing stock, ACS estimates, and the current growth in the rental market (which currently has a very high occupancy rate[17]), a generous assumption for 2020 is an occupancy rate of 92%.

With these assumptions in place, **Table 21** estimates the number of housing units needed in 2020 to accommodate the projected population of 75,855. The 2010 group quarters population was about 2,000 and this figure is not expected to change much meaning residential housing units are needed for 73,855 people. If three people are living in each occupied unit, 24,618 units are necessary. But since only 92% of actual housing units will be occupied, 26,759 residential housing must exist in the county to house the projected population.

[17] City of Hobbs Housing Needs Assessment, July 2015, RRC Associates LLC

Table 21. Housing Units Needed in Lea County in 2020

2020 Projected Population	75,855 Persons
Population Living in Group Quarters	2,000 Persons
Population in Need of Residential Units	73,855 Persons
Divided by 3.0 Persons per Household	24,618 Housing Units
Divided by 0.92 Occupancy Rate	26,759 Housing Units

Table 22 reflects how many new housing units must be built between 2010 and 2019 in order to reach the projected need of 26,759 housing units. According to the 2010 census there were already 24,919 housing units in the county. However, the loss of existing housing units much be factored in because some older, decaying housing units will become inhabitable, a small number will be lost to fire or other damage, and some will be demolished in order to build a new one on the existing lot. Estimating loss is difficult. The Census Bureau has a method for estimating housing loss,[18] but this equation produces what we feel is an unreasonably high figure. Instead we looked at demolition records form the City of Hobbs and used that to estimate the same demolition rate for the rest of the county. The approximate projected loss between 2010 and 2019 is 692 housing units. If this loss is subtracted from the existing housing stock it shows a need for 2,532 additional housing units in the county between 2010 and 2019.

Table 22. Housing Units Construction Need in Lea County 2010-2019

Housing Units Needed in 2020	26,759
Less Existing Housing Units	24,919
Less Estimate of Housing Unit Loss	692
Housing Units in Need of Construction	2,532

Table 23 shows the average annual need for additional housing units between 2015 and 2019. Since this is a rough estimate with a number of assumptions (group quarters population, occupancy rate, persons per household and housing loss) this figure will be rounded to 2,500. Construction data for the period 2010-2014 already exists for Hobbs. Data for the remainder of the county should be available from the New Mexico Construction Industries Division. Unfortunately, this data is of poor quality and is not suitable for this analysis. There are two other factors that complicate our estimate of housing growth from 2010 to 2014. First, there is discrepancy in the data for the City of Hobbs with regards to what is being reported to the Census Bureau and what we are seeing in the permit files that the city shares with GPS and BBER on a monthly basis. Second, reliable data for manufactured homes (in Hobbs, the remainder of Lea County, and the entire United States) is always of suspect quality because of the ease with which

[18] http://www.census.gov/popest/methodology/2013-hu-meth.pdf

these units can be placed or relocated outside the permitting process. Therefore, our best estimate of the actual growth of housing units between 2010 and 2014 is somewhere between 500 and 1,000 new housing units. If this actual growth is subtracted from the ten-year need of 2,500, we arrive at a need of between 1,500 and 2,000 housing units which must be constructed or located in Lea County between 2015-2019. This equals 300-400 housing units per year over the five-year period. This type of growth is atypical of historic trends, but has been seen over the last twelve to eighteen months. Between January and July of 2015 alone, 356 residential units were permitted for construction in the City of Hobbs. The permitting of multifamily units is a very large factor in this growth. **Maps 8-13**[19] show where housing growth has been concentrated in Hobbs. Multifamily unit construction began in 2013 and much of that growth was on or near East Bender Blvd. Growth in manufactured homes was mostly in the south part of Hobbs while single family units were more dispersed throughout the city. The continued construction of multifamily units would most likely be necessary in order to achieve the target of 1,500-2,000 new units between 2015-2019.

Table 23. Housing Unit Construction Needs in Lea County 2015-2019

Estimated Need in Housing Growth 2010-2019	2,500
Housing Units Added 2010-2014	500-1,000
Additional Housing United Needed 2015-2019	1,500-2,000
Need Per Year 2015-2019	300-400

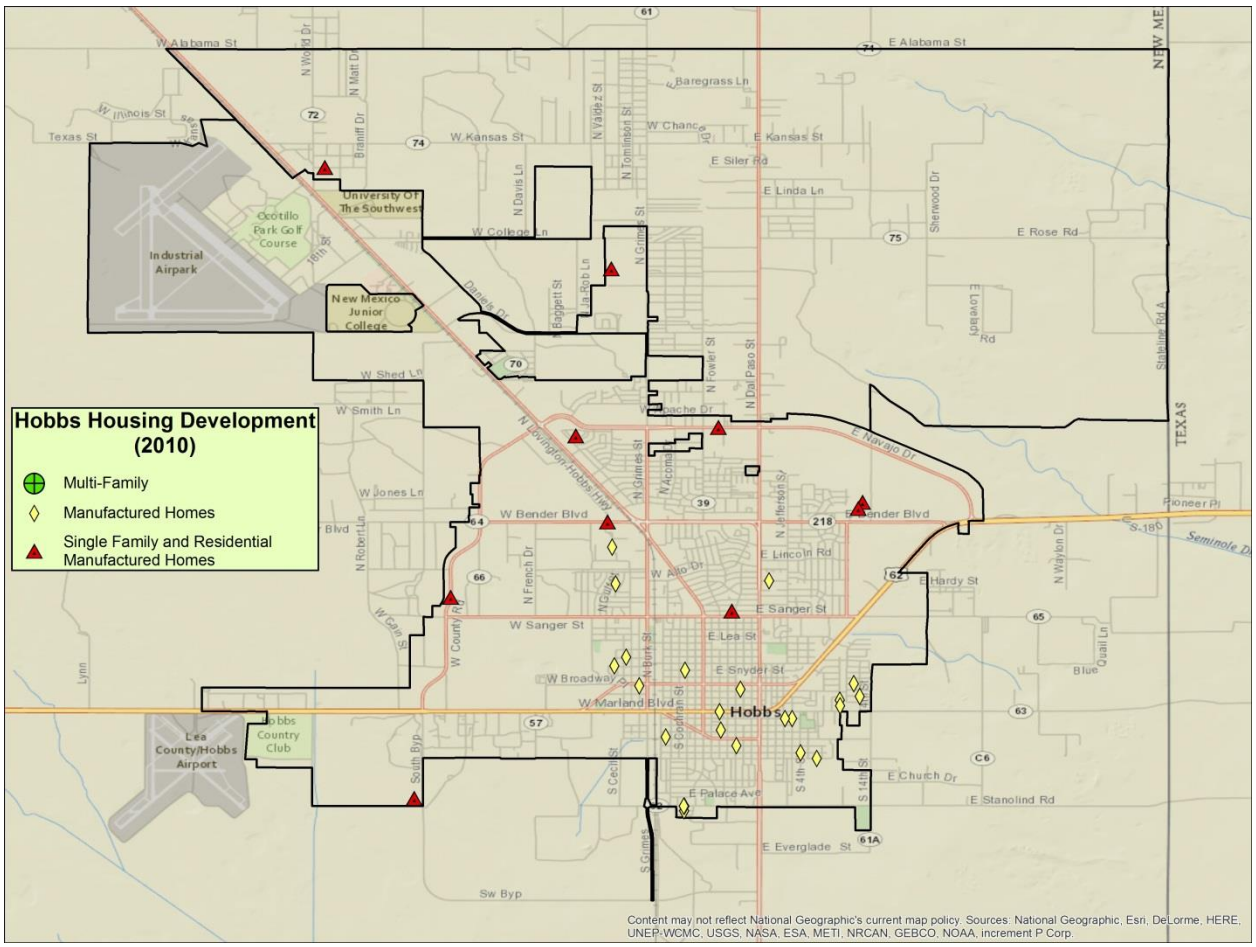
Conclusion

The UNM GPS projected population of 75,855 for Lea County in 2020 was calculated using proven techniques that have yielded accurate results in New Mexico for decades. It should be repeated here though that a population projection is not a statement of what *will* happen but rather a statement of what is *most likely* to occur given historic trends and current conditions. The methods employed here have been shown to have a mean average percent error of plus or minus 6% over a five-year projection.[20] Another way to view this projection is that we believe there is a 50% chance the population of Lea County will be above this figure and a 50% chance the population will be below this figure when the results of the 2020 Census are tabulated. It is our opinion, unlike much of this report which is objective, that the population will indeed be somewhere between 74,000 and 76,000 come 2020 provided that birth, death, migration and employment trends are not disrupted by some unforeseen circumstance. It is also assuming that housing growth continues along high recent trends.

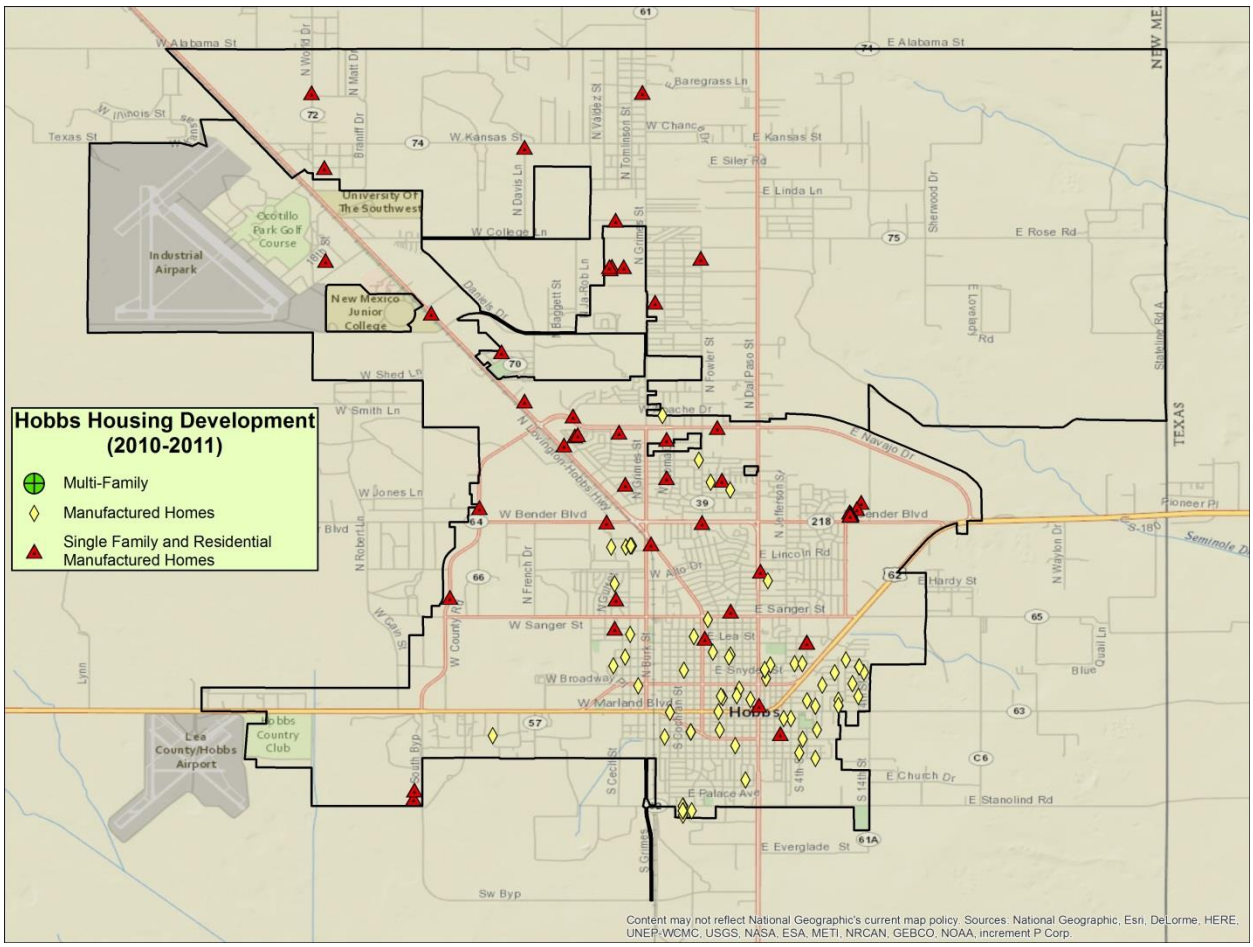
[19] Housing Unit Growth is only shown for the City of Hobbs. The majority of growth has occurred in this city and, as stated earlier, data for the reminder of the county is of poor quality.

[20] Smith, Tayman and Swanson. *State and Local Population Projections: Methodology and Analysis*. New York: Kluwer Academci/Plenum Publishers. Print 2001.

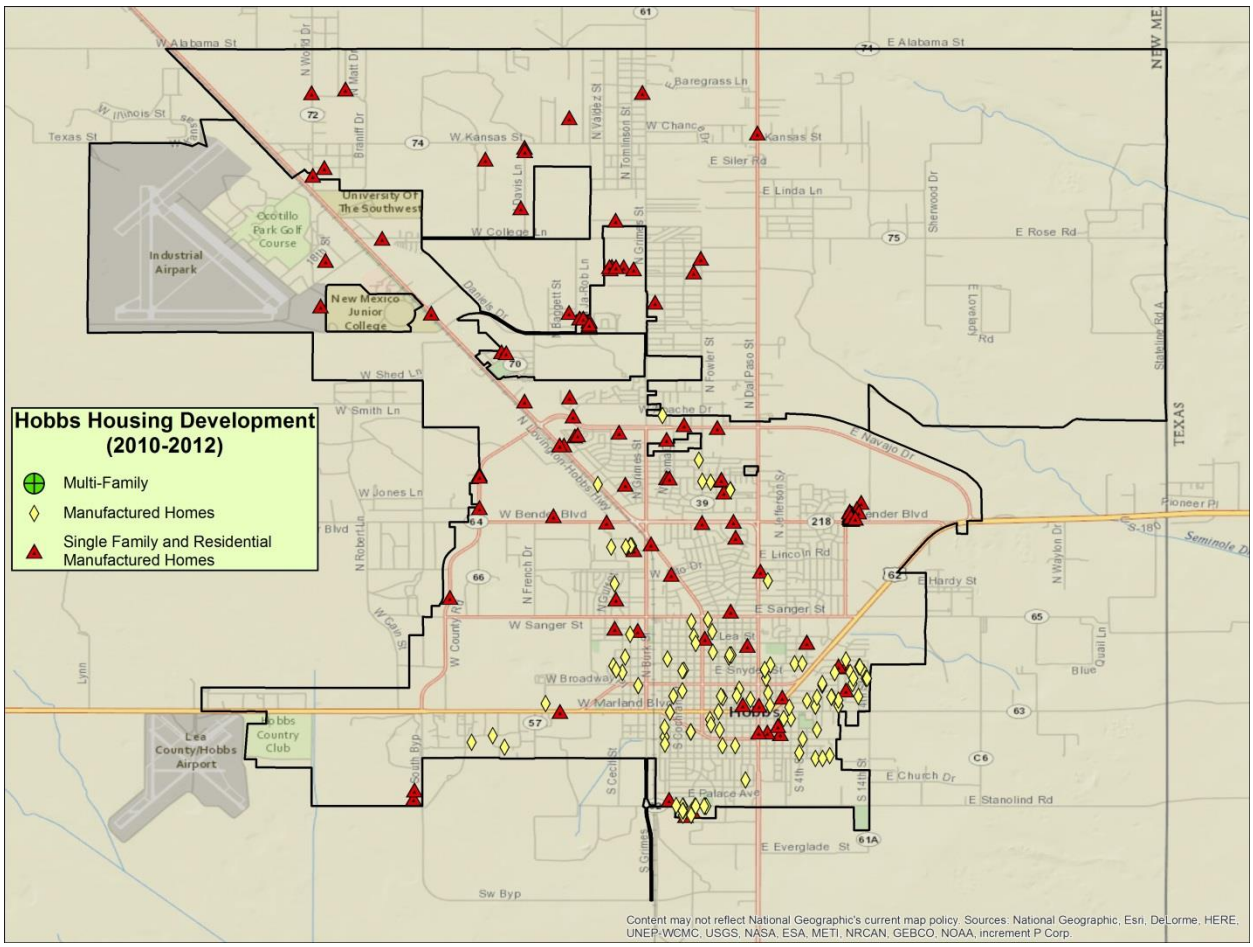
Map 8. Hobbs Housing Development 2010



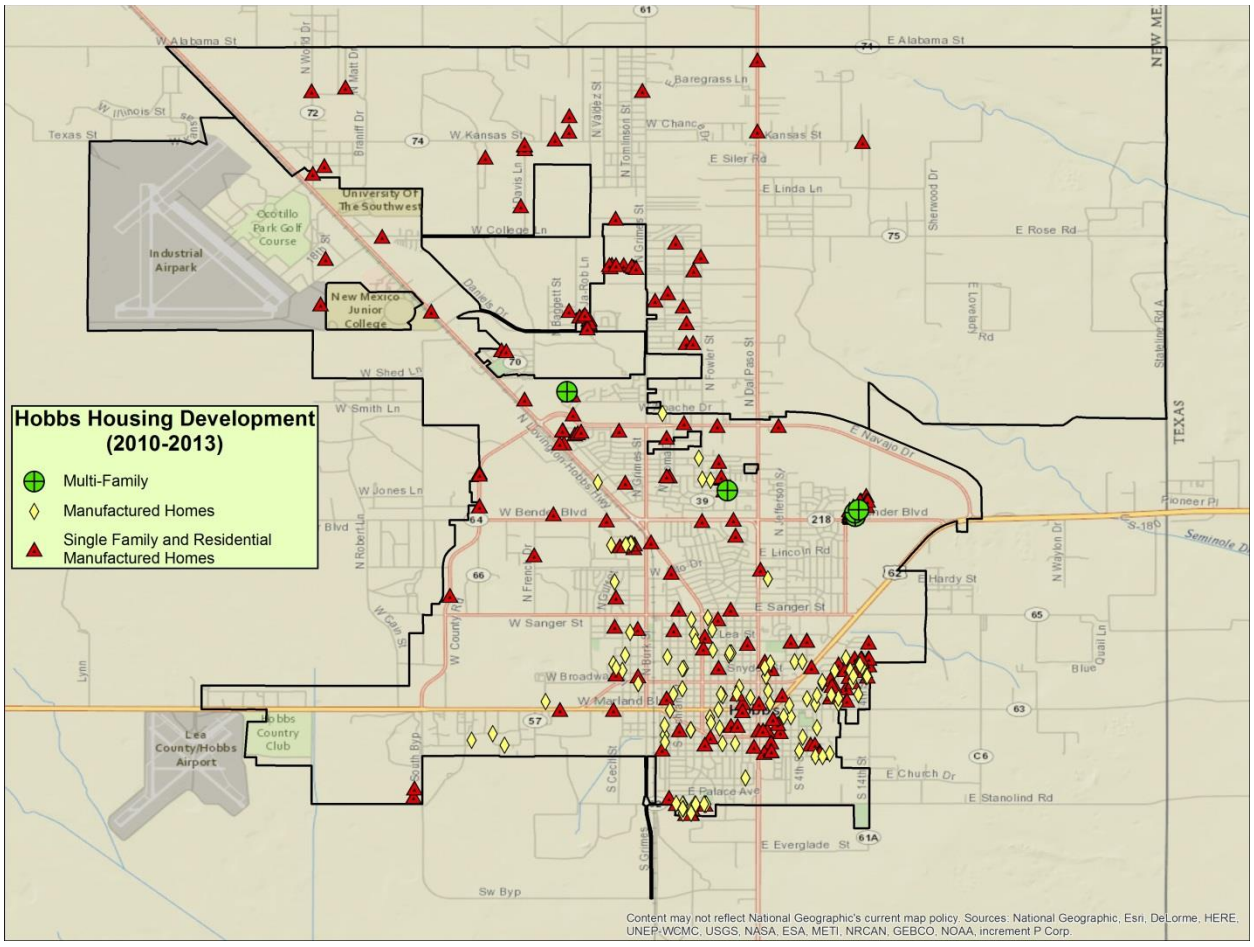
Map 9. Hobbs Housing Development 2010-2011



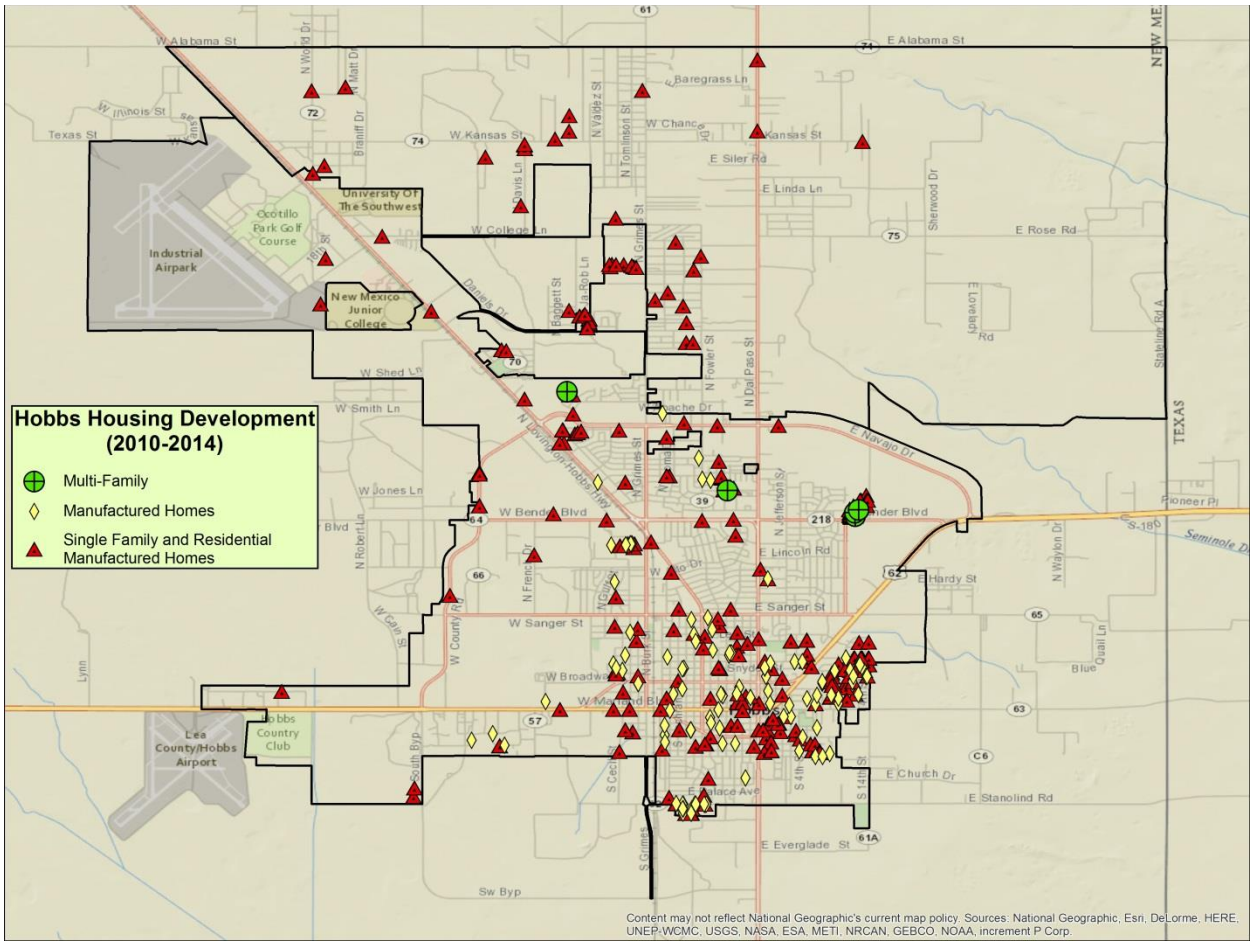
Map 10. Hobbs Housing Development 2010-2012



Map 11. Hobbs Housing Development 2010-13



Map 12. Hobbs Housing Development 2010-14



Map 13. Hobbs Housing Development 2010-15